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ABSTRACT

Due to the controversy over the institution of parole and recent changes in the criminal justice and penal system of Maryland, statistical models mirroring current parole practice were developed. These are described in this document in an effort to stimulate discussion leading to an explicit and equitable parole policy. Such variables as offense seriousness, institution of confinement, occupational standing, and predictions of future behavior are found to be a part of implicit parole policy. A variety of alternative statistical descriptions of current parole practice are presented. Research on implicit parole policy is reviewed and some speculations about desirable features of an eventual parole policy are offered. Suggestions are made about policy formation and implementation. The role of monitoring the criminal justice and penal system to evaluate the consequences of any policy is emphasized. The formulation of policy is viewed as a continuing evolutionary process in which explicit statements of policy are followed by careful implementation, monitoring, review and revision. Numerous charts and tables describe the parole system and choices in terms of inmate characteristics and behaviors. (Author/WI)

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Explorations of Parole Policy

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Abstract

In the context of controversy about the institution of parole and recent changes in the criminal justice and penal system in the State of Maryland, the Maryland Parole Commission has collaborated with researchers in an examination of current implicit paroling policy. The aim of this effort was to stimulate discussion leading to an explicit and equitable parole policy by developing statistical models that mirror current parole practice.

The statistical models developed imply that there is substantial regularity in implicit paroling policy. Such variables as offense seriousness, institution of confinement, occupational standing, and predictions of future behavior, among others tend to be related to parole decisions. A variety of alternative statistical descriptions of current parole practice are presented. They are all descriptive rather than prescriptive models of policy. These models can form a basis for discussion of factors to be considered for inclusion or exclusion in the development of an explicit policy, but they do not specify what the factors ultimately included in such a policy ought to be.

Other research on implicit parole policy is reviewed, and some speculations about desirable features of an eventual parole policy are offered. Some suggestions about next steps in policy formulation and implementation are outlined. Finally, the role of monitoring the criminal justice and penal system to evaluate the consequences of any policy is emphasized. The formulation of policy is viewed as a continuing, evolutionary process in which explicit statements of policy are followed by careful implementation, monitoring, review, and revision.

FORWARD

Maryland Parole Policy Study

In 1976 the Maryland Parole Commission initiated an examination of its current parole policy. This initiative was taken in response to changes in the environment of the criminal justice system and to perceived changes in the patterns of correctional programs in Maryland. Program changes were noted in the internal restructuring of the Parole Board into the Parole Commission with the implementation of the recent legislative mandate for Hearing Examiners and for an appellate procedure. External to the Commission but intrinsically related were the development of the correctional programs of community correction and contract parole. Also influencing the functions of the Parole Commission was a local increase in inmate population with prison overcrowding and state prisoner backup in local jails and detention centers. In this consideration of its own policy, the Commission is aware of developments in the prediction of behavior and changes in public attitudes toward corrections and rehabilitation as evidenced by demand for mandatory sentences and just punishment.

In the development of any future policy, the Commission resolved that the following objectives should be addressed:

1. Reduce decision disparity and increase decision equity without eliminating appropriate discretion.
2. Encourage correctional agencies in the development of needed treatment.
3. Identify needs for correctional programs to address.
4. Validate prediction methods for Maryland.
5. Improve the quality of information used at parole consideration.
6. Promote accountability.

7. Decrease recidivism rates.

8. Promote general and special deterrence.

9. Improve inmate morale.

10. Decrease appeals and promote speedy decision rendering.

In evaluating current policy as a step toward the development of future policy the Commission conducted an examination in accordance with sound research principles. An empirical study does not, of course, prescribe a policy. Nevertheless, the study that the Parole Commission has conducted does indicate that the Commission has an operative policy and that rational examination and consideration can result in policy development that would further the cited objectives. The policy examination reported here highlights the need for objectives concerning the issue of sentence disparity and the equity role of the Parole Commission as well as the need for standards of information required at parole consideration.

This study points out the interaction between parole policy and correctional programming. Inherent in this interaction is a potential for conflict. In Maryland we are fortunate to have a secretariat structure to coordinate the functions of parole and corrections. The Parole Commission appreciates the guidance and support of Robert J. Lally, Secretary of the Department of Public Safety and Correctional Services, and W. Donald Pointer, Deputy Secretary for Corrections. This study was supported in part by funding through the Maryland Governor's Commission on Law Enforcement and Administration of Justice, Grant #5192DIA-2-F.

Henry P. Turner, Chairman
Maryland Parole Commission

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Explorations of Parole Policy

Parole is the discretionary release of adjudicated offenders from confinement. Although it has been an institution in America for about a century, the continued existence of parole in the United States is now a matter of serious debate. Based on the proposition that explicit and equitable parole within the context of the American criminal justice and penal system is a goal worth working for, the Maryland Parole Commission has collaborated with the present authors in an examination of its paroling policy in practice. The ultimate aim of this effort is to enunciate an explicit policy for parole decision making that can be applied by hearing examiners in a way that meets the demands of the public for due punishment, is equitable and rational, is open to public scrutiny, provides incentives for order and security in penal institutions, and decreases the exposure of the public to the disruptive presence of adjudicated criminals who are most likely to perpetrate new offenses.

In Maryland, the sentencing judge typically commits an adjudicated offender to the custody of the Division of Corrections for a specific number of years. In most institutions inmates may earn good time at the rate of five days per month and industrial time at a rate of five additional days per month. Such good time is vested as it is earned, although there are procedures under which it can be rescinded for certain institutional infractions. Under Maryland law during the period of the study, a person must be given parole consideration by the time one fourth of the sentence has been served.

The need for practical paroling criteria is particularly urgent now in the context of growth in Maryland's inmate population. Since 1974, the population of offenders sentenced to terms qualifying for parole has increased on the order of 10% annually. At the same time, although more parole cases are being heard, the number of paroles granted has declined on the order of 3% annually. Currently, parole consideration is given to a substantial number of State inmates who are awaiting classification and program placement in city or local jails. There is a widely shared impression that State prisons and local jails are overcrowded. Clearly, one way to decrease the population of incarcerates is to expedite the parole process.

Against this background of penal system change, and in response to increasing public and legislative interest, the Maryland Parole Commission is attempting to reaffirm a role in the criminal justice system that is consistent with its legislative mandate by establishing explicit paroling criteria. The goal is to create criteria that can be used by hearing examiners to improve the consistency of parole decisions and to adjust sentencing disparity while taking public safety into consideration.

The present report is intended to help the Parole Commission develop its policy by (a) reviewing briefly the recent criticisms of the institution of parole, (b) analytically examining the parole decision in Maryland, (c) comparing the results of this examination with the results of other investigations, (d) reviewing the attempts of others to grapple with parole policy, and (e) suggesting the broad outlines of a potential paroling policy. In addition, some suggestions

for steps that may be useful in implementing an explicit policy are made. These suggestions call for open public discussion of the policy and careful monitoring of the effects of changed parole decision-making practices on the entire criminal justice system.

The Parole Controversy

The controversy over parole is a complex one not only because the issues involved in parole and parole decision-making are complex, but also because the institution of parole is embedded in a larger criminal justice system. The system is one in which discretion is exercised at many points, in which much crime goes undetected or unprosecuted (President's Commission on Law Enforcement and the Administration of Justice, 1967), and in which it is really not clear what kinds of handling of offenders from among the many alternatives will eventuate in deterrence--specific or general. Examining the criticisms of parole without considering its context seems potentially counterproductive. Several of the arguments made in defense of parole rely on a comparison between what parole can be and what the criminal justice system now is. Let us examine the criticisms and defenses of parole in more detail.

Parole usually determines the length of time an individual under sentence shall spend in a prison. Vocal critics claim that sentencing decisions should be in the hands of the courts (Conrad, 1977; Manson, 1977; Stanley, 1976). The arguments vary, but in general imply that an open, adversarial judicial proceding guided by well-defined sentencing laws is fairer than parole board hearings that are characterized as closed, arbitrary, and quasi-legitimate. As the

defenders of parole (Glaser, 1977; O'Leary, 1975; Siegler, 1975) point out, however, it is not at all clear that parole decisions are any more arbitrary than judicial decisions (Frankel, 1973; Hoffman & DeGostin, 1975). In addition, Siegler (1975) describes a judicious paroling procedure that approaches judicial procedures in its appellate safeguards. In short, although parole can often be criticized as arbitrary or capricious, it is not at all clear that the alternative--sentencing by one of a large cadre of judges--is in any way superior. This kind of criticism seems valid only if one assumes a radical change in judicial sentencing practices. At present, parole has much potential as an equalizer of discrepant judicial sentences for highly similar offenses.[1]

A second kind of criticism of parole discretion, implies that it is not open to public scrutiny. One desirable feature of discretionary decision making in the criminal justice or penal system is that policies be open to review (Reiss, 1974), yet it is argued that parole boards themselves can not specify how they make decisions (Stanley, 1976). This criticism is a telling one for many parole agencies, but it is a criticism that can be overcome by formulating and adhering to explicit policies to structure discretion (Gottfredson, Hoffman, Seigler & Wilkins, 1975; Hoffman & DeGostin, 1975).

A third set of criticisms implies that parole is based on an

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[1] Underlying some arguments for fixed sentences is a desire to reduce discretion allowed to parole boards or judges. Experience suggests, however, that such determinate sentencing practices may simply shift the operation of discretion to other parts of the system (Clear, Hewitt, & Regoli, 1977). Changes in prosecutorial behavior or the behavior of correctional personnel or administrators may occur.

incorrect assumption that rehabilitative decisions are being made. Without going into the details of the literature, it has been plausibly argued that little evidence of the effectiveness of any sort of correctional treatment can be adduced (Martinson, 1975; Kassebaum, Ward & Wilnet, 1971). An assessment of this literature implies, however, that little high quality evaluation research has been done to carefully test treatment programs, that many of the programs in existence lack a credible theoretical rationale or sufficient intensity (Greenberg, 1977), or were really not implemented as intended. Although at present there is little evidence that any kind of currently implemented treatment of incarcerated people has utility, the appropriate conclusion appears to be that better evaluations of more credible treatments should be tried, not that nothing will ever be found to work. For additional reviews see Hallek and Witte (1977) and Quay (1977).

Recently also, some authors have contended that people released to parole supervision perform better in the community than do those released without parole supervision (Martinson & Wilks, 1977; Neithercutt, 1977). This, they claim, is grounds for the defense of parole supervision. The evidence cited, however, is suspect because it fails to control adequately for differences in those receiving supervision and those released without it or confounds the effects of parole decisions with the effects of parole supervision (Gottfredson, 1975). The Martinson and Wilks (1977) report is especially weak. One could, of course, disclaim the rehabilitative ideal with regard to parole and claim that its functions are to ensure that offenders serve an amount of time appropriate to their offense, taking into account the need to keep order in institutions and differences in the criminal histories of individuals.

A fourth kind of criticism implies that if parole is used as an instrument of control, then inmates will feel compelled to participate in institutional treatment programs that they should have the freedom

to reject. There can be little doubt that inmates usually do believe that program participation may improve their chances of an early parole, whether or not parole boards actually consider program participation in their decision-making. The critics contend that this may have two negative consequences: (a) the rights of prisoners are violated through a subtle form of coercion, and (b) treatment programs are rendered ineffective through a lack of involvement or commitment on the part of the program participants. If one accepts the view that the compulsion of adjudicated offenders to undergo treatment is unethical, then this is a criticism that must be taken seriously. One approach to remedying the situation has been the legislation (California SB 42) of determinate sentences with explicit provisions for sentence reductions through good time and its vestiture. This approach could also be embodied in explicit paroling policies, of course. Regardless of how account is to be taken of institutional conduct, the only defensible position appears to be to insist on some sort of case review with appeal possibilities whenever confinement is extended for misconduct. This could be through a new trial for alleged new offenses or via some other quasi-judicial procedure if time served is not extended beyond the length of the original sentence. One obvious arrangement would be for hearing examiners to perform this function with the possibility of appeal to the parole board. It would be necessary to publicize the information that failure to participate in a treatment program would never be viewed as an institutional infraction and would not in itself improve an individual's chance of an early parole.

A fifth criticism leveled at parole decisions is that mistakes

are sometimes made (Stanley, 1976). This criticism is heard when decisions are made at least partly on the basis on information about the individual as well as information about the gravity of the offense. The use of psychometric devices such as Base Expectancy (Gottfredson & Bonds, 1961; Hoffman & Beck, 1976) is criticised on the basis that the predictions are not perfect. So, for example, if a person with many prior arrests or convictions is denied parole at a time when a first offender would be released, this is viewed as an improper "psychologizing" of the decision process. If assessments of personal history or parole prognosis can not be made with perfect validity, says this argument, they should not be made at all. Because it appears unlikely that any psychometric device will ever achieve perfect validity, parole prediction tables used to aid parole decision-making will always misclassify some individuals. At the same time, it is clear that actuarial devices are superior to clinical judgments of parole prognosis (Gough, 1962; Wiggins, 1973). Consequently, decisions about the release of persons must either be made without considering the likelihood of recidivism at all, or errors may be minimized by using the most efficient tools available. One way to promote fairness would be to encourage wide public discussion of what kinds of personal history information should be considered in making paroling or sentencing decisions, and to make the actual information used (e.g. numbers of prior convictions) a matter of public record.[2]

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[2] It is important not to confuse the assessment of criminal history with attempts to predict dangerousness (Monahan, 1978). The prediction of low frequency (low base-rate) phenomena is fraught with technical difficulties (Gough, 1962; Wiggins, 1973). For a conservative view of the proper role of prediction in criminal justice decision-making see Task Force Report (1978). That report eschews prediction and suggests fixing time served based on the particular offense and offense record. If predictions are made they should be "made on the basis of actuarial variables that are both open to public review as well as specifically keyed to the offender's criminal history (p. 29)."

The argument that basing the severity of penal sanctions on predictions of future behavior is unjust is now widely accepted (Task Force, 1978; von Hirsch, 1976). This view, based on ethical considerations, must be taken seriously in the development of criminal justice decision-making policies.

In summary,[3] many criticisms of parole or the paroling process lead to the conclusion that, within the context of the present system of criminal justice, careful attention to specifying the basis of parole decisions can be used to make the system fairer. Open, explicit, and efficient parole policy guidelines have much to offer. This understanding forms the basis of the present research.[4]

An Empirical Study of Implicit Parole Policy

As a step in formulating an explicit paroling policy, the way that actual parole decisions are made in practice was examined. Detailed empirical examination of decisions provides a way to make implicit policy more concrete by creating statistical models of that policy. Building quantitative models of decison-makers' policy in practice is sometimes referred to as "policy capturing" research. This research builds models of actual parole decisions--it "captures" existing policy.

These models can not specify what a sound, rational, or just penal policy should be. Instead these empirical policy models mirror the behavior of decision-makers. Such mirrors can provide policy makers with a valuable basis for discussion of potential changes in policy and with some guidance in formulating an explicit policy. The actual decision rules to be used must ultimately be developed through discus-

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[3] An independent discussion of these issues can be found in Harris (1975).

[4] Although Article 41, Section 12 (A) of The Annotated Code of Maryland provides some guidelines for parole policy, they are often difficult to apply unambiguously in specific cases.

sion by the policy makers. As the National Advisory Commission on Criminal Justice Standards and Goals (1973) notes, a primary goal of parole boards is to articulate such policies in explicit form. Policy makers will want to alter parts of any statistical description of current behavior to make it accord more closely with their judgments of propriety, fairness, and sound policy. Almost surely, the process of developing, evaluating, and altering policy will be a continuing one. No policy statement will ever be final.

Method

Data used to capture Maryland paroling policy were collected by the staff of the Maryland Parole Commission. Coding of information from case folders available to examiners at the time of the parole hearing and collection of examiner ratings of the potential parolee was performed according to procedures established in advance by the research team.[5] Information coded covered a broad range of information about the prior record, employment history, educational attainment, institutional behavior, commitment offense, and parole plans of the prospective parolee as well as information about the length of the judicially imposed sentence, months served, and institution of confinement. All information was collected at approximately the same time the hearing was held, and using only information available at that time.

[5] LeDornai Smothers, Julias Copeland, and Michelle Webb, all of whom were undergraduates at the University of Baltimore Day College, served as coders.

Variables examined. The following list summarizes the principal variables used in the present research:

1. Sentence length is the number of months of actual sentence. For persons incarcerated in some institutions, time earned for good behavior was deducted from the total number of months to which a person was originally sentenced.

2. Weapon use in the commitment offense was noted and a dichotomous variable created such that a value of "1" indicated the use of a weapon and "0" indicated no weapon was used or no mention of a weapon appeared in the file.

3. An offense seriousness rating for the commitment offense coded using the Uniform Parole Reports (UPR) categories (Gottfredson, Neithercutt, Venezia & Wenk, 1970) was created by recoding the UPR codes according to the rating scheme shown in the Appendix III, Table III-7. The higher the number assigned the more serious the offense. The seriousness ratings were made by the authors after consulting the results of several empirical studies of perceptions of offense seriousness (Hoffman, Beck & DeGostin, 1973; Rossi, Waite, Bose & Berk, 1974; Sellin & Wolfgang, 1964). This seriousness variable suffers from the problem of substantial heterogeneity of offense seriousness possible within the UPR categories. For example, a theft or larceny could involve $100 or $10,000. Although these two offenses differ in seriousness, they would have been assigned the same seriousness score in the present research.

4. Base expectancy scores for each potential paroiee were calculated by assigning unit weights to items found in other work (Gottfredson & Bonds, 1961; Hoffman & Beck, 1976) to be related to parole outcome. Details and rationale for the procedures used can be found in Appendix III.

5. Expected time served for the offense was estimated in two ways. First, each UPR code for the commitment offense was recoded into a new variable representing the median time served for that offense in a massive national study of time served (Gottfredson, Neithercutt, Nuffield & O'Leary, 1973). Thus, a person convicted of willful homicide received a score of 58.6 months and a person convicted of vehicle theft received a score of 13.8 months. Second, information about the UPR code for commitment offense together with information about the person's base expectancy score was recoded into a new variable approximating the expected time served according to the Federal Parole Board's parole policy (Hoffman & DeGostin, 1975). Thus a "low" severity offense with a "very good"--fourth quartile or higher--base expectancy score received a score of 8 months, and a "very high" severity offense with a "poor"--below the first quartile--base expectancy score was given a score of 60 months.

6. Prestige of usual occupation is conceived as a general measure of social standing. A person's occupation is a major determinant not only of self-perceptions but also of the ways others view him or her. Prestige can also be construed as a general measure of vocational success, although success is obviously a complex idea. Prestige codes were assigned by recoding each detailed (three-digit) occupational

code for the potential parolee's usual occupation (U.S. Bureau of the Census, 1971) using the results of Temme's (1975) research. When no usual occupation was coded, the prestige score for general laborer was assigned.

7. Race was recoded as 1 if the potential parolee was white and was coded as zero otherwise.

8. Months served is the number of months between the beginning of a prospective parolee's sentence and the hearing date.

9. Proportion of sentence served was calculated by dividing the number of months served at the time of the hearing by the sentence length.

10. Received new sentence was coded as "1" if the potential parolee received a new sentence as the result of a law violation since his or her commitment and was coded as "0" otherwise.

11. Adjustment to custody is a composite on which a high score is obtained by those with few institutional infractions or escape attempts. Details are given in Appendix III.

12. The institution at which the potential parolee was confined was examined using a series of dummy variables (Cohen, 1968). For any given institution a code of "1" was assigned if the hearing occurred there and a "0" if it did not. Information about hearings held in "jails and other" locations was carried in the constant term because all the information in a set of nominal categories can be expressed using one fewer dummy variable than the number of categories. The following abbreviations are used in the report to refer to institutions:

MCCC = Maryland Correctional Camp Center (minimum security)

MHC = Maryland House of Correction (medium security)

MP = Maryland Penitentiary (maximum security)

CCTF = Community Correction Task Force (minimum security)

MCIH = Maryland Correctional Institution, Hagerstown (medium security)

MCTC = Maryland Correctional Training Center (minimum security)

MCIW = Maryland Correctional Institution for Women (all security levels)

MRDCC = Maryland Reception, Diagnostic, and Classification Center (all security levels)

CVRCC = Community Vocational Rehabilitation and Release Center (minimum security)

13. Ratings made by the hearing examiner at the time of the parole hearing were used in several ways. For some analyses each individual item rated was treated individually. For others, three scales labeled aggressive, cooperative, and willing to change were used. Finally, an overall or global rating scale was used for many analyses. This scale was created by simply adding up all the items (after allowance for the direction of a favorable rating) to yield a total score. Whenever the word "ratings" is used without qualification in the text it refers to the global rating scale. Details of the ratings used are given in Appendices II and III.

14. Information about the parole recommendation was collected using four major categories: refuse, rehear, release, or hold for additional information. In addition, if the recommendation was to

rehear, the length of time to the next hearing was recorded (less than 9 months or 9 months or more). For most analyses reported in the main body of this report, the criterion variable examined was the decision to release versus refuse or rehear. Those cases in which the decision was to hold were excluded from those analyses.

Sample. All parole cases heard for parole consideration between 22 February and 26 May 1977 were included in the sample except that the following four kinds of cases were excluded: (a) the Commissioner reviewing a hearing examiner's recommendation did not concur (n = 103); (b) the case was a contract parole (Mutual Agreement Program) case[6] (n = 76); (c) the case was being heard by two Commissioners sitting together[7] (n = 118); (d) the potential parolee was on a detainer to

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[6] In such cases the Commission is presented with a proposed contract. Contracts are initiated by the Division of Corrections. To be elibible for a contract a person must have a bad prior record, an educational deficit, and be a good security risk.

[7] Although the law allows a parole hearing at any time, it requires one by the time 1/4 of the sentence has passed. The custom of the Parole Commission is to hear cases near the 1/4 mark. Cases usually referred to as "commission cases" are heard by two Parole Commissioners sitting together. These cases are for people convicted of first or second degree murder or early hearings for those convicted of certain offenses (commission of or attempt to commit abduction, arson, burglary, escape, house breaking, kidnapping, manslaughter other than involuntary, mayhem, murder, rape, robbery, or assault with intent to commit any of these offenses, or the use of a hand gun when committing or attempting to commit any crime). Early hearings may occur on the recommendation of an institution superintendent, a judge, or a prosecutor. These commission cases were excluded from the study sample.

another jurisdiction (n = 191).[8] In all, 1391 cases were included in the final study sample.[9]

Cases were heard by hearing examiners or Parole Commission members sitting as hearing examiners. The hearing examiners have a wide range of experience in parole and probation work, where they typically held management or supervisory posts. They had only short-term experience as hearing examiners and no formal training for the task other than a short period of observation of one week of hearings conducted by Commissioners. Two of the Commissioners had experience in parole or probation work prior to taking posts as Commissioners, other prior experience includes work as lawyers or teachers. All had extensive experience hearing parole cases. The distinction between hearing examiners and Commissioners is an important one because it is Commissioners and not examiners who are responsible for developing parole policy. For this reason cases in which the reviewing Commissioner did not concur with the examiner's recommendation were deleted from analyses. In all 48% of cases were heard by Commissioners sitting as examiners and 52% were heard by examiners. Unless otherwise specified, the term "hearing examiner" is used hereinafter to refer generically to hearing examiners or Commissioners sitting as hearing examiners.

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[8] In this case, there is no decision to be made. The person can not be paroled.

[9] The sample was 96% male and 66% black. Median age was about 26 years. In comparison, 96% of all Division of Correction inmates were male, 76% were black, and the median age was about 26 years at the end of June 1977.

Analyses. Some previous parole policy analyses have attempted to use information about the parolee or decision-making ratings to predict the number of months served prior to parole (Hoffman, 1973; Scott, 1974). That approach has some value if the task of a parole board is conceived to be to determine the length of time a particular sentenced individual should serve in confinement. In other words, the approach appears to take for granted this aspect of paroling policy. In practice, however, parole boards do not necessarily behave as if they were a panel convened to determine amount of time a person shall serve in confinement. Instead they often tend to decide whether or not to grant parole in particular instances of people being considered for parole. The Maryland Parole Commission, in particular, seems to behave in this way. It usually hears specific cases only after almost a fourth of the sentence has been served even though under law a person may receive parole consideration at any point during the sentence. Consequently, the task of building a statistical model of the policy of this Commission was viewed as one of modeling decision making at the hearing, i.e., the decision to parole, rehear, refuse, or hold the case for further information.

The principal analytical technique used to model the parole decision is multiple discriminant analysis (Van de Geer, 1971).[10] The models resulting from the use of this technique are linear composites that weight predictor or "explanatory" variables in such a way that

[10]Additional, introductory descriptions of this statistical technique can be found in any of the following sources: Cooley, 1971, Nie, Hull, Jenkins, Steinbrenner, and Bent, 1975; Nunnaly, 1967.

representatives of different groups are maximally distinguished. In the present application, the results of discriminant analysis are sets of equations (called discriminant functions) that use information about cases to describe the ways that cases in which parole was granted differ from other cases.

When multiple discriminant analysis is applied to the problem of describing the ways in which two groups differ from each other (as when one describes how parole granted cases differ from continued or refused cases) one discriminant function will be obtained. Speaking loosely, this equation provides the formula for calculating scores on which the mean (average) scores of the two groups will differ most. When one attempts to describe the ways in which three different groups differ from each other (as when one describes how a parole-granted group differs from those continued, and how both of those groups differ from a group which was refused parole), two discriminant functions will usually be obtained. These two functions provide formulae for calculating coordinates in a two-dimensional space in which the centroids (average scores) of the three groups will differ most from each other. Similarly, when one attempts to describe the ways in which four groups (refuse, rehear, hold, parole) differ from each other, three discriminant functions will usually be obtained. These three functions specify formulae for calculating coordinates in a three dimensional space in which the four groups will be most separated.

One is seldom able to find a set of discriminant functions that will completely separate one group from the others. In other words, individual cases within one group usually overlap the positions of

representatives of other groups somewhat--discrimination is imperfect. A statistic called Wilks' lambda (λ) is often used to describe the efficiency with which a discriminant function separates representatives of different groups along the dimension it specifies. Lambda ranges from 1.0 to 0.0, where 1.0 implies no separation of groups at all and 0.0 implies perfect separation. In other words, the smaller the value of λ , the better the model.

Although λ provides a good index of how well a discriminant function separates groups, in practical application of any model one might wish to know something about the categorical agreement of parole recommendations based on a particular model and the actual recommendations made by decision makers. Percentage agreement is sometimes used, but because a certain percentage of agreement can usually be expected by chance alone, an index called Cohen's (1960) kappa (κ) is used. This index is the ratio of greater-than-chance agreement actually observed to the amount of greater-than-chance agreement that is possible. The maximum value that κ can have is 1.0, indicating perfect agreement between predictions based on the statistical model and actual parole decisions. A value of 0.0 would mean no greater-than-chance agreement. In other words, the larger the value of κ , the better the agreement between the model's "recommendations" and actual decisions. Kappa has been calculated for a subset of models reported here.

One last statistical technique was used in the present research--multiple regression (Van de Geer, 1971). Because this technique has been much used in criminological research (it is for example one of the principal tools used in developing experience tables to predict parole outcome) little will be said about it here. Speaking loosely,

it is a procedure which combines a number of predictors into an equation that yields the highest correlation with a criterion. It is used here to describe the length of time a new hearing was postponed if the parole decision was to refuse or rehear the case, and to describe the amount of time served prior to release on parole. The same sources listed in footnote 10 (page 16), provide introductory accounts of this procedure.

Cross validation. In any statistical study in which models are developed to predict or describe some behavior, the generalized efficiency of the models is usually overestimated when evaluated only in the samples in which they were constructed. This is because it is always possible to captialize on chance when predictors or weights are chosen so as to maximize predictive efficiency in the sample. For this reason, the total sample was split into two parts. One part, called the construction sample was used to develop models. A second sample, called the validation sample, was held aside and was used only to test the efficiency of models in a sample other than the one in which they were developed. One third of the original sample of cases was assigned to the validation sample using computer generated pseudorandom numbers. The construction sample was larger than the validation sample to provide greater stability in the models developed (Dunnette, 1966).

Results

Construction sample. The research progressed in a number of steps in which examination of empirical results alternated with discussions with the Parole Commission staff about the utility of models of different types. Early analyses revealed that the parole group could be

reasonably well discriminated from cases where the decision was to refuse or rehear, but that discriminating "holds" from the other groups was more difficult. To simplify exploration of the data, a series of analyses that aimed at discriminating individuals granted parole from other cases (with "hold" cases deleted from examination) were performed. These early analyses were performed in a stepwise fashion. The most potent predictors were used first and then predictors that added most to discrimination were then added one-by-one until a small set of variables that modeled the parole decision reasonably well was obtained (Appendix IV displays the results of these and other analyses touched on here only briefly).

As a result of these exploratory analyses we learned that the following combination of variables were fairly potent predictors of the parole decision: (a) hearing examiner ratings, (b) the institution of confinement, (c) sentence length, (d) weapon use, (e) prestige of usual occupation, (f) race, (g) proportion of sentence served, (h) the receipt of a new sentence, (i) base expectancy. Several other variables, although sometimes associated with the parole decision added relatively little to the efficiency of description of the parole decision.

Table 1 illustrates how these variables operate to describe parole decisions. It shows six different models in which different combinations of descriptive variables were used to discriminate cases where parole was granted from cases where the decision was to refuse or rehear. The table requires some explanation. Model 1 contains all of the discriminatory (descriptive) variables listed earlier. Model 2 uses the same discriminatory variables as Model 1 except that race is

Table 1

Standardized Discriminant Weights for Several Models of the Decision to Grant Parole vs. Refuse or Rehear

Variable	Univar. F	Model 1	2	3	4	5	6
Ratings at hearing	230.77	.63	.65		.82		
Institution							
MCCC	75.73	-.03	-.04	.05			
MHC	63.42	-.50	-.52	-.73			
MP	16.44	-.25	-.25	-.42			
CCTF	12.94	.06	.05	.14			
MCIH	7.64	-.25	-.24	-.30			
MCTC	6.21	-.29	-.30	-.39			
MCIW	1.29	-.05	-.06	-.08			
MRDCC	.85	-.15	-.17	-.24			
CVRCC	.00	-.09	-.09	-.07			
Sentence length	46.13	-.03	-.04	-.02	-.25	-.38	-.43
Weapon used	35.11	-.16	-.17	-.21	-.21	-.28	-.33
Prestige of usual occupation	21.79	.10	.11	.24	.13	.38	.42
Race is white	19.76	.11				.29	
Proportion of sentence served	11.76	.23	.22	.25	.23	.35	.35
Received new sentence	10.55	-.01	-.01	-.07	-.10	-.26	-.28
Base expectancy	8.27	.03	.01	.12	.06	.33	.31
Group centroid							
Refuse or rehear		-.43	-.42	-.34	-.38	-.24	-.23
Parole		.96	.96	.76	.85	.54	.51
Wilks' lambda		.59	.59	.74	.68	.87	.88
Percent correct classification		81	82	74	79	70	69

excluded. Model 3 uses the same discriminatory variables as Model 2 except that hearing examiner ratings are also excluded. Model 4 uses information about hearing examiner ratings but excludes information about the institution of confinement as well as race. Finally, Models 5 and 6 resemble each other in using no information about examiner ratings. They use only data about sentence length, weapon use, prestige, proportion of sentence served, receipt of a new sentence, and base expectancy; and they differ in that only Model 5 uses race.

The first column in the table, headed "Univariate F," may be viewed as a loose index of the efficiency with which each discriminatory variable by itself separates the parole granted group from the refuse/rehear group. Thus, the global ratings made by examiners at the parole hearing are strongly associated with the decisions they make at that hearing. This is to be expected. One would not anticipate that examiners would simultaneously deny parole and yet give very favorable ratings of an individual.

The institution of confinement is also strongly related to the parole decision. In general, examiners appear reluctant to recommend parole for inmates of high custody institutions. By reading down the first column in this table, one sees that the discriminatory variables are ranked in descending order of their ability to separate the two criterion groups by themselves.[11]

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[11] This does not necessarily imply that these variables are determinants of the parole decisions. These univariate results may be due to other characteristics of persons or offenses that are related to these variables. Persons in certain institutions, for example, may have distinctive criminal records.

The remaining columns have a different meaning. For each model, these columns show standardized discriminant weights in the discriminant function that best separates the parole vs. refuse/rehear groups using the discriminatory variables included in the model. In essence, these coefficients show how strongly associated with the parole decision each predictor is when the other predictors are used simultaneously.

At the bottom of the table is given information about the group centroid (average) on the discriminant functions for the two decision groups, Wilks' lambda, and the percentage of cases for which the criterion group predicted by the model agrees with the hearing examiner's recommendation.

Comparing the six models shown in Table 1 reveals some interesting results. First, the Wilks' lambdas imply that the efficiency of the models ranges from fair (.88) to good (.59).

Second, information about the institution of confinement is very useful in describing implicit paroling policy even when other variables are statistically controlled. Other things equal, inmates of minimum security institutions appear generally more likely to be granted parole than those of medium or maximum security institutions.

Third, race is moderately correlated with the parole decision even when all other variables (including examiner ratings and institution of confinement) are statistically controlled. Whites are more likely to be paroled. Interpreting this result is difficult because one can not infer that race per se makes any unique contribution to explanation unless all potential discriminatory variables correlated with race have been included in the model and measured without error. Because this is

not the case, we can only say that race or some otherwise unmeasured variable with which it is correlated is related to the parole decision. In other words, this result may but does not necessarily imply racial bias in decision-making.[12]

Fourth, prestige is a useful explanatory variable. This outcome is not surprising. Prestige or social standing is perhaps the primary dimension of human social interaction, and it can be viewed as a crude proxy for a larger number of other variables including occupational and educational attainment and social desirability among others. Interestingly, the predictive usefulness of prestige drops when examiner ratings are included in the model (compare Model 6 with Model 4), implying that examiners may be sensitive to the social standing of the individuals they are considering for parole.

Fifth, both sentence length and proportion of sentence served are useful in describing implicit parole policy. Those with long sentences are less likely to be paroled, but as the proportion of sentence served increases so does the probability of parole. These models of implicit policy clearly imply that examiners do not recommend parole after any particular proportion of judicially imposed sentence has passed. The standardized discriminant weight given proportion of sentence served is never the largest weight in any of these six models.

Sixth, whenever hearing examiners' ratings or institution of confinement are included in the model, base expectancy has little additional explanatory value. This outcome is probably the result of institutional assignment decisions having been made at least in part on the basis of

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[12] Additional reasons for caution in interpreting residual associations with subgroup membership such as race or sex in analyses like the present one as direct effects are given by Wolins (1977).

personal history. When, however, institutions and ratings are deleted from the model, base expectancy does appear to be moderately related to the parole decision.

Models which parallel the six models just described, but which attempt the more complex task of discriminating among three (refuse, rehear, release) or four (refuse, rehear, hold, or release) groups are shown in Appendix IV.

As a result of discussions among Parole Commission staff and the investigators, it was decided to modify the models examined by excluding race from consideration and including institutional conduct. Four separate analyses to discriminate the paroled group from those where the decision was to rehear or refuse were performed. The purpose, once again, was to allow comparisons of models including and excluding examiners' ratings and institution of confinement. The results of these analyses are displayed in Table 2.

As was observed in Table 1, the most efficient description is obtained using Table 2 models that include hearing examiners' ratings (probably largely an artifact of the collection of ratings at the same time the parole decision was made) or institution of confinement. Although these variables do help to describe parole decisions, their use in an explicit policy would probably be open to much question. For this reason, the present discussion will focus on Model 4 in Table 2.

An interesting result is the low weight the discriminant analysis assigned to adjustment to custody in Model 4. One possible explanation of this result is that this variable has little variance because few individuals had any institutional infractions or escape attempts. When there is little variability in a predictor it naturally does not predict

Table 2

Additional Models of the Decision to Parole vs. Refuse or Rehear

Variable	Standardized discriminant weights for model: 1	2	3	4
Ratings at hearing	.64		.81	
Institution				
MCCC	.02	.14		
MHC	-.48	-.67		
MP	-.23	-.38		
CCTF	.06	.16		
MCIH	-.22	-.27		
MCTC	-.26	-.32		
MCIW	-.04	-.05		
MRDCC	-.15	-.21		
CVRCC	-.08	-.06		
Sentence length	-.03	-.02	-.22	-.37
Weapon used	-.18	-.22	-.22	-.34
Prestige of usual occupation	.12	.25	.15	.45
Proportion of sentence served	.24	.27	.25	.39
Received new sentence	-.02	-.08	-.12	-.30
Adjustment to custody	.02	.01	.00	.06
Base expectancy	.01	.12	.06	.28
Group centroids				
Refuse or rehear	-.41	-.33	-.36	-.22
Parole	.96	.77	.86	.53
Wilks' lambda	.60	.74	.68	.88
Percent correct classification	83	73	78	69

anything well, especially when competing with correlated predictors with more variance.

The interpretation of the rest of the model appears straightforward. If the sentence was long or a weapon was used, the likelihood of parole being granted is decreased. This may reflect a response to the gravity with which the offense is viewed. Similarly, probability of parole is lowered by new sentences. In contrast, probability of parole being granted increased with the proportion of sentence served, the occupational standing of the subject, and with good parole prognosis according to the base expectancy measure.

As noted earlier, the use of hearing examiners' ratings as explanatory variables is suspect because we can expect a positive assessment to be made of a person for whom an examiner has just decided to recommend parole. Nevertheless, an interesting question has to do with which characteristics of a prospective parolee examiners must rate as positive before they recommend parole. To learn more about the implicit bases of the parole decision a separate analysis of the examiner ratings was made.[12]

Specifically, in these analyses the three homogeneous rating scales were used together with other ratings of individual items which were not included in a homogeneous scale.[13] Because it appeared implausible that any decision made would not take account of the seriousness of the

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[12]This strategy is related to the strategy used to examine parole policy in seven states in the Gottfredson, Cosgrove, Wilkins, Wallerstein, and Raub (1977) report.

[13]The items not included in one of the scales were originally selected for inclusion in the rating sheet as a result of discussions with Parole Commission members of the criteria upon which they make decisions.

offense and the amount of time already served,[14] these pieces of information were also used in the model. The results are shown in Table 3.

Other things in the model being equal, those who are granted parole appear to be individuals that the examiner believes will avoid crime, meet financial obligations, and are willing to change their behavior. Those who are not paroled are individuals that the examiner believes may commit a violent crime or whose commitment offense was serious. This analysis lends support to the notion that examiners intend to give weight not only to the seriousness of the commitment offense, but also to the likelihood of future criminal behavior. The relatively heavy weight given to the judgment that the subject will commit a violent felony is an outcome that can be expected to create genuine problems for any explicit parole policy. A policy that incorporated this goal would be impossible to implement because of the practical obstacles to efficient prediction of low base rate phenomena such as violent crimes (Meehl & Rosen, 1955; Monahan, 1977; Schwitzgebel, 1977; Shah, 1978; Wenk, 1972).

One final analysis was performed. This analysis was guided by the investigators' guess about the variables that could ultimately be included in a parole policy which could be defended. The aim was to see whether or not there was any tendency for parole decisions to conform to a model that uses only these variables. A number of variables found useful in earlier analyses were simply ignored for this purpose. Instead, the selection of variables was aided by the American Law Institute's Model Penal Code. The Model Code implies that parole

[14] In a study reported by Wilkins, Gottfredson, Robison, and Sadowsky (1973, Table 1) 100% of parole board staff used information about commitment offense and 76% used information about time served prior to the hearing.

Table 3

Using Examiners' Ratings to Model Their Decisions to Parole vs. Refuse or Rehear

Item	Standardized Discriminate Weight
If released inmate will:	
Use drugs illegally	.02
Maintain steady employment	.03
Abscond	.08
Abuse alcohol	.09
Commit a felonious violent crime	-.27
Commit a felonious property crime	.10
Commit a misdemeanor	-.15
Avoid criminal behavior	.20
Meet financial obligations	.27
Have a satisfactory living arrangement	.09
Have a satisfactory work arrangement	.06
Scales:	
Willing to change	.37
Cooperative	-.02
Aggressive	.04
Seriousness of commitment offense	-.18
Months served	-.07
Group centroids	
Refuse or rehear	-.40
Parole	.92

(continued)

Table 3 (Continued)

Item	Standardized discriminant Weight
Wilk's lambda	.62
Percent correct classification	80

decisions should take into account (a) the risk that a person will violate parole conditions, (b) the seriousness of the crime, (c) the requirements of institutional discipline, and (d) the prospect that treatment, care, or training in an institution will lower the probability of recidivism.

The risk that a person will fail on parole was represented by the base expectancy score. It is assumed that society may properly be more concerned with any particular instance of law violation when it is produced by a person with a long history of illegal behavior than when produced by a first offender. The seriousness of the present offense was represented by the seriousness rating; and the consideration of the need to maintain institutional discipline was represented by including the measure of institutional infractions--adjustment to custody--in the model. The last Model Penal Code consideration was disregarded due to a lack of evidence that any currently available institutional treatment is demonstrably effective in lowering recidivism rates or that amount of time served is related to parole failure when personal history variables are controlled.

In short, the theoretical model being tested using parole decision data can be summarized by saying that the number of months that a person spends in confinement should be a function of (a) the seriousness of the present offense, (b) the extent of past involvement in crime,[15] and (c) institutional comportment.

In essence, this is a model that could be applied near the beginning of a person's prison term to set a release date subject only to review to insure that institutional conduct has been satisfactory. For

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15 In any application the actual variables used might differ from those in the present test. For example, number of past convictions rather than a base expectancy score might stand for criminal history, in accord with the von Hirsch (1976, chap. 16) strategy. As noted earlier, prediction is increasingly being eschewed by critics of criminal justice decision making.

this type of application the present data provide a poor test. As noted earlier the Parole Commission currently tends to make decisions whether or not to parole a person whose case is under consideration rather than to make decisions about the amount of time than an individual should serve. The actual model constructed here differs from the earlier models in that multiple regression rather than discriminant analysis was used. The criterion predicted was not the decision whether or not to grant parole, but instead was the number of months incarcerated prior to parole for those inmates granted parole.

Table 4 summarizes the results. The interpretation of the first column in this table is analagous to the interpretation of standardized discriminant function coefficients in earlier tables. These standardized partial regression coefficients, or beta weights, show the relative contribution to "explanation" of variance in months served when other variables in the equation are statistically held constant. They show that more time is served by those with more serious offenses, less time is served by those with good conduct in the institution, and that base expectancy makes almost no contribution to the prediction of time served when the other two variables are held constant. In fact, base expectancy does not even make a statistically significant contribution to the model. The multiple R^2 of .23 means that the model works fairly well to predict months served, with 23% of the variance in the time served associated with the prediction equation.

In short, Table 4 implies that there is a tendency for the implicit

Table 4

A Model of Time Served Prior to Parole Release

for Paroled Cases (n = 235)

Predictor Variable	Standardized regression coefficient (β)	Unstandardized regression coefficient (b)	Standard error of b	F
Offense seriousness	.346	.268	.045	35.441
Institutional adjustment	-.319	-1.319	.260	25.653
Base expectancy	.011	.011	.066	.029
Constant	--	4.572		

Note: Multiple R = .48, R^2 = .23. F (3,231) = 23.03.

Attempts to improve on the model by adding an interaction term (base expectancy x offense seriousness) resulted in no increased efficiency (R^2 = .23).

time served policy to resemble parts of the hypothetical policy but not to resemble all of its parts.[16]

Cross validation. To gain an unbiased estimate of the efficiency of any model, the equation developed in the construction sample must be applied to a new, cross-validation sample. In this way the decisions "recommended" by a model can be compared with the actual decisions made in the cross-validation sample. Several models were cross-validated in this way. Because the actual decision to grant or deny are expressed in terms of categories, a measure of categorical agreement is required to assess predictive efficiency. As noted in the section on methods, the simple percentage of agreement is difficult to interpret because a certain percentage of agreement is expected by chance alone. Consequently, Tables 5 through 8 which summarize the results of these cross-validations show kappas as well as percentage agreement.[17]

Table 5 shows cross-validation results for the most efficient model developed (Model 1 of Table 1). This model uses examiner ratings, institution, sentence length, weapon use, occupational prestige, race,

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[16] It should be noted that the procedure of including only paroled cases within a give time period rather than all cases sentenced with a given time period biases the sample somewhat in the direction of cases with short sentences or few appearances before the Parole Commission. For the present purposes this does not appear to be an important limitation.

[17] A substantial proportion of cases were lost in the validation sample because of missing data required to compute the discriminant scores. Unlike the construction sample work, no missing data were allowed in the validation sample. Cutting discriminant scores were chosen in the construction sample so that the proportion approved according to the model roughly equalled the proportion actually approved. The cutting score thus established in the construction sample was used in cross-validation. Most of the cross-validated validity coefficients are larger than the validity coefficients in the construction sample. This is probably due to the use of only those cases with complete information in the cross-validation sample, rather than allowing some missing data as in the construction sample. Construction sample procedures decreased the variance in the predictors.

Table 5

Predictive Efficiency of Model 1 of Table 1

Predicted Decision	Actual Decision: Parole	Actual Decision: Refuse/rehear	Total
Construction Sample[a]			
Parole	192	75	267
Refuse/rehear	94	536	630
Total	286	611	897
Validation Sample[b]			
Parole	51	19	70
Refuse/rehear	8	126	134
Total	59	145	204

Note: Underlining shows correct predictions

[a] 81.2% correct predictions; kappa = .56

[b] 86.7% correct predictions; kappa = .69

proportion of sentence served, new sentences, and base expectancy to predict the parole decision. The model continues to work well in a new sample, with 87% of decisions predicted by the model being the same as the actual examiner recommendations. The kappa means that 69% of possible greater-than-chance agreement occurred.

Table 6 shows results of the cross-validation of a model similar to the one just presented, but with ratings, institution, and race deleted (Model 6 of Table 1). This model, which was less efficient than the previous model in the construction sample is also less efficient on cross-validation. It achieves 71% correct classifications (about equal to the base rate) with a kappa of .19.

Table 7 shows the result of an attempt to cross-validate one additional model, one that uses sentence length, weapon use, prestige, proportion of sentence served, new sentences, adjustment to custody, and base expectancy (Model 4 of Table 2). The performance of this model developed after discussion with Parole Commission staff performs about as well as the model in Table 6. It makes about 72% correct predictions and agrees with examiner recommendations a little more often than expected by chance alone given the distributions of recommendations ($\kappa = .19$).

With the exception of the model (Table 5) incorporating examiner ratings, none of the models are highly efficient predictors of actual parole recommendations in either construction or validation samples, although they do considerably better than chance.

The results for the model based largely on examiner ratings (Table 8) imply that this model holds up very well on cross-validation and is

Table 6

Predictive Efficiency of Model 6 of Table 1

Predicted decision	Actual Decision: Parole	Actual Decision: Refuse/rehear	Total
Construction Sample[a]			
Parole	<u>55</u>	48	103
Refuse/rehear	231	<u>563</u>	794
Total	286	611	897
Validation Sample[b]			
Parole	<u>20</u>	17	37
Refuse/rehear	59	<u>168</u>	227
Total	79	185	264

Note: Underlining shows correct predictions

[a] 68.9% correct predictions; kappa = .14

[b] 71.2% correct predictions; kappa = .19

Table 7

Predictive Efficiency of Model 4 in Table 2

Predictive decision	Actual Decision: Parole	Actual Decision: Refuse/rehear	Total
Construction Sample[a]			
Parole	<u>50</u>	45	95
Refuse/rehear	236	<u>566</u>	802
Total	286	611	897
Validation Sample[b]			
Parole	<u>18</u>	15	33
Refuse/rehear	56	<u>167</u>	223
Total	74	182	256

Note: Underlining shows correct predictions

[a] 68.9% correct predictions; kappa = .12

[b] 72.3% correct predictions; kappa = .19

Table 8

Predictive Efficiency of a Model of the Parole Decision Based Primarily on Examiner Ratings of the Potential Parolee

Predicted decision	Actual decision		
	Parole	Refuse/rehear	Total
Construction sample[a]			
Parole	<u>179</u>	71	250
Refuse or rehear	107	<u>540</u>	647
Total	286	611	897
Validation sample[b]			
Parole	<u>50</u>	19	69
Refuse or rehear	13	<u>139</u>	152
Total	63	158	221

<u>Note</u>. --Underlining shows correct predictions.

[a] 80.1% correct predictions; kappa = .52.

[b] 85.5% correct predictions; kappa = .65.

fairly efficient. A total of 86% of the model's predictions agree with the actual parole decision, and the kappa of .65 indicates that 65% of the possible greater-than-chance agreement occurred when the model was applied in this new sample. In sum, the same subjective judgments that were associated with the parole decision in the construction sample are related to the decision in about the same way in the validation sample.

Finally, the theoretical model developed by using variables suggested by the Model Penal Code to predict the time served before release for paroled cases was used to predict time served by those paroled in the cross-validation sample. The correlation obtained using the model of Table 4 in the new sample was .44 (n = 75), implying that this model holds up well, accounting for 19% of the variance in months served by those paroled.

Discussion. The present study appears to have several major limitations. The most important limitation as an aid to the Parole Commission in articulating an explicit paroling policy is that no empirical summary of actual practice can ever suggest what policy ought to be. In every case, the analyses simply describe current practice--they capture implicit current policy. A second major limitation arises should the Maryland Parole Commission decide (as did the Federal Parole Board) that the major task of parole policy formulation is to decide how much time a person with a certain set of characteristics should serve. The present analyses mirror Parole Commission behavior. In other words, they model the decision to parole or not at the time of a hearing. They only tangentially address an alternative question: How long should this person serve time in prison before release on parole?

The study also shares limitations with most other research in criminal justice and penology. The availability and reliability of data were poor. Information was often difficult to code reliably (Appendix II), and indeed much information was missing altogether (Appendix I). Unreliable information makes modeling difficult, and missing data results in potential biases of an unknown nature. A limitation on the generalizability of the results arises because certain kinds of cases were excluded--contract parole cases, cases reviewed earlier than usual, and cases that may have been more difficult than others to decide upon (those that were held for additional information or those in which the reviewing Commissioner did not concur with the examiner's recommendation).

Despite these limitations, the analyses probably do serve the purpose for which they were intended. They provide a basis for discussion of patterns or implicit policies in current paroling practice. The results do establish that current practices are not random, but instead can be predicted to a certain extent from information available to examiners at parole hearings, although this prediction is far from perfect. Discussion of the results may lead to formal adoption of some implicit policies and the rejection of others.

Several consistent patterns are discernable in the results. First, the parole decisions are difficult to model. The efficiency of the concurrent models of paroling policy developed here is not great--especially when ratings made at the time of hearing are excluded from the models. Some of this inefficiency is, of course, due to the measurement difficulties just described. At the same time, however,

the possibility that decisions are not always made consistently according to any particular specifiable policy should not be overlooked. The results do imply that greater consistency can almost surely be achieved with implementation of a carefully specified explicit policy. Doing so will require not only a policy but also an insistance on the availability of the information required to implement it. The evidence about missing data and difficulty in extracting information from files presented in Appendices I and II imply that steps to ensure higher quality information are desirable.

Second, some variables are statistically linked with parole decisions but would be difficult to use in a formal policy because they would be difficult to defend or because of practical obstacles. Use of information such as race, institution of confinement, usual occupation, or marital status are probably examples of variables that, although perhaps sometimes related to criminal history, security classifications, or parole prognosis, would be hard to justify in any formal parole policy. Attempts to predict dangerousness or future violent criminal behavior could not be incorporated in a policy because, as a practical matter, it can not be done efficiently. Attempts to predict such rare events almost always result in extensive overprediction of dangerousness.

Third, some of the results imply that there are trends for current implicit policy to resemble the Model Penal Code suggestions that seriousness of offense, institutional conduct, and parole prognosis be used to guide decisions about penal sanctions.

One consequence of current decision-making practice is that a substantial proportion of persons are continued in the institution and

scheduled for a rehearing at a later time. The discrimination of individuals refused parole altogether from those scheduled for rehearing proved difficult, although some description was possible (Appendix IV). Those refused tended to have short sentences, receive unfavorable ratings, have served a high proportion of their sentences, and been confined in high security institutions. Appendix IV presents additional information about attempts to describe the length of time a subject is continued before a subsequent rehearing and to perform multiple discriminant analyses of the differences among all categories of parole decision.

Other Studies of Parole Decision Making

Previous empirical investigations of the parole decision-making process fall into three categories. Parts of earlier studies that may be most helpful in formulating policy or as a context for the present results are briefly summarized here.

Investigations of the correlates of parole decisions

Several attempts have been made to build statistical models of the parole decision. Although these have been conducted using different populations, the results nevertheless generally resemble those of the present research. Scott (1974) and Scott and Snider (1975) report two sets of analyses of over 300 decisions in a Midwestern state. The criterion studied was time served before parole rather than the decision to grant or deny parole. Scott's (1974) report implies that seriousness of the commitment offense (inferred from length of minimum sentence imposed), prior record, number of disciplinary reports, age, being male, and low socio-economic status are all associated with

being denied parole. Each of the variables just listed is useful in description even when other predictors are statistically controlled. In addition, the Scott and Snider (1975) report implies that the institution in which a person is confined is related to the parole decision even when other characteristics of the person and the offense are statistically held constant.

Two other studies, one in Britain and one in Illinois examined the decision to grant or deny parole. The British investigation (Banister et al., 1974) compared 36 paroled persons with 84 persons of the same age and type of sentence who were denied parole. Those paroled were reported to have more stable family situations, to have been older at the time of first conviction, have fewer previous convictions and less serious previous convictions, fewer institutional infractions, and "more interesting jobs" while in prison. The Illinois study (Heinz, Heinz, Senderowitz & Vance, 1976) is difficult to interpret despite its fairly large (n = 294) sample size because it reports primarily univariate results. The multivariate results presented do not provide the kind of detail needed for clear interpretation. The results do imply, however, that the parole decision is predicted fairly well (R^2 = .23) by (a) the correctional sociologist's prognosis of parole success, (b) the seriousness of the current offense, (c) the number of prior convictions, and (d) post-parole employment plans when these variables are combined in a regression equation. Univariate analyses imply that the following variables were related to the decision to grant parole: young age, high intelligence, low offense seriousness, few prior convictions, being married, good employment plans, few dependents, and

good parole prognosis in the opinion of the correctional sociologist.

Taken together, these earlier investigations show a striking convergence with the description of Maryland parole decisions developed in the present research.

Investigations of information selection

A useful report by Wilkens et al. (1973) describes a series of investigations of the way parole decision makers use information. Without going into detail, these results suggest that the examination of different kinds of information may precede the decisions to grant versus deny parole, that increasing information does not always increase either the confidence in or the quality of the decision, and that decision makers are not in complete agreement about the relative importance of different pieces of information. Despite some heterogeneity of opinion, some clear trends in the importance of specific pieces of information emerged. The following list includes, in order of importance, items of information which are often used by decision makers (taken from Wilkins et al., 1973, Table VI):

instant offense--official description
instant offense--inmate's description
time served prior to present hearing
type of prior convictions
age
number of prior convictions
time to mandatory release
previous convictions for instant offense
release job prospects

number of prior arrests

release living arrangements

parole eligibility

type of admission to system

prior parole and probation revocations

mitigating factors

changes in attitude noted

vocational training in institution

time to full term expiration

drug use

academic progress in institution

number of prior incarcerations

Examination of implicit policy

Hoffman (1973) reports an effort of the Youth Corrections Division of the U.S. Parole Board to examine its own policy decisions. Board members rated the case under consideration on four subjective factors at the time they made their parole decisions. Of these four ratings--offense seriousness, institutional program participation, institutional discipline, and parole prognosis--two were related both to the recommendation to defer the parole decision and to recommend total time to be served before the next review. These two were ratings of parole prognosis and offense seriousness. Hoffman's study resembles the results of the present study summarized in Table 3. An extensive report of the work on Federal Parole Board policy research which also discusses principles useful in policy formulation may be found in Gottfredson, Wilkins and Hoffman (1978).

A major project (Gottfredson, Cosgrove, Wilkins, Wallerstein &

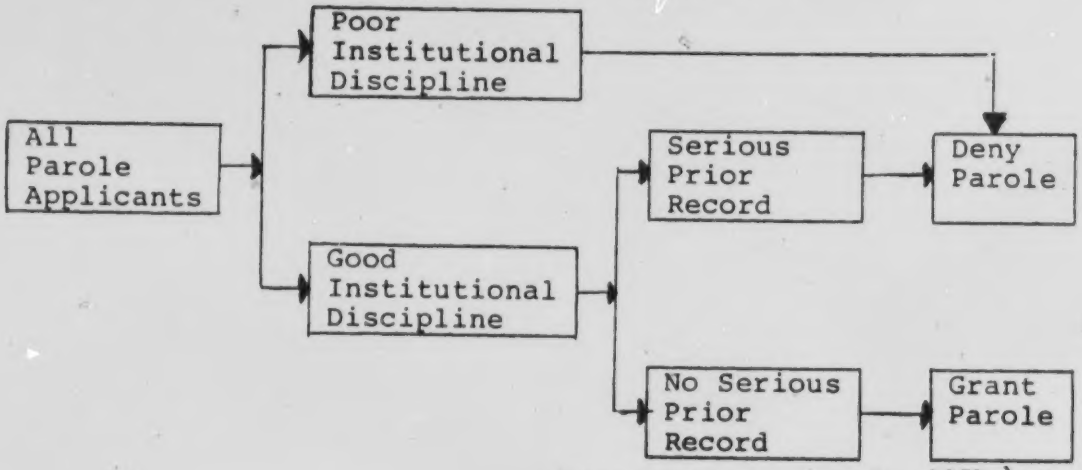
Raub, 1977) in which researchers collaborated with paroling authorities in seven states to develop prescriptive guidelines based on discussion, review, criticism, and revision of descriptive studies of paroling policy provides useful information. Although particular strategies for the examination of policy and the development of guidelines differed from state to state, the goal in each case was to discover what factors were viewed as important in making parole decisions. Discussion of initial models led to tentative guideline formulation that could serve as the starting point of a continuing "evolutionary process of development, examination, modification, implementation, redesign, and further assessment (p. xxviii)."

The strategy for developing models in each state resembled the strategy used with the Federal Parole Board and in developing the statistical models in Table 3 of the present report. Two types of models were developed, some states testing one and other states testing the other. The first type, called a sequential model is characterized by a sequence of decision points. It resembles a sorting procedure. Figure 1 illustrates one such model. Although this type of model has some appeal, note that it has the potential of giving great weight to single pieces of information. In the example, a person with poor institutional comportment would be denied parole regardless of other characteristics.

The second general type of model, called a matrix model, depends on the development of dimensions or factors about which paroling authorities may be concerned in making parole decisions. The cell in such a matrix in which a particular case falls provides guidance to

Figure 1

A Sequential Model of Parole Policy



(From Gottfredson et al., 1977.)

Figure 2

A Matrix Model of Parole Policy

Risk of New Offenses

Seriousness of Offense	Low			High
Least	0-6 months			
Most				48-60 months

Expected Months to be Served in Prison

(From Gottfredson et al., 1977.)

the paroling decision. Figure 2 illustrates such a model. In this example a person with good parole prognosis and a minor offense would serve little time and one with a serious offense and poor prognosis would serve longer.

One outcome of the experience of guideline development in these seven states is the demonstration that practical structures for parole policy can be developed, implemented and revised in a number of jurisdictions. Based on the experience in the seven-state project, the researchers concluded that some degree of slack in the policy may be desirable. That is, it appears unlikely that any single policy can be used in practical application without the use of discretion. Special circumstances will arise from time to time that make deviation from the policy structure reasonable. As a rule of thumb, it was assumed that perhaps 80% of decisions would fall within the guidelines when applied in practice.

Toward an Explicit Policy

This section summarizes the authors' speculations about some next steps in the formulation of a fair and explicit parole policy. The section is organized into three parts. First, an account is given of what appear to be desirable characteristics of a parole policy. Second, one potential structure for aiding policy development is delineated. Third, some procedures that may assist in policy implementation are discussed.

Desiderata

The earlier discussion of the criticisms and defenses of parole appear to imply that the following features of a parole policy are desirable:

1. There should be an explicit policy. Only when policy is made concrete can it be examined, credibly defended, and revised when necessary.

2. The policy may take account of the general notion of just deserts; i.e., that the punishment ought to fit the crime.

3. Reliance on evidence about past criminal behavior is preferable to reliance on forecasts of future behavior. Although this desideratum may seem to thwart attainment of the goal of releasing primarily good risks, it need not. The best predictions of recidivism are generally based on evidence about past criminal behavior.

4. If any predictions of future behavior are used, they should be psychometrically efficient. When alternative methods of prediction are available only the most valid should be used. Attempts to predict low base rate phenomena should be avoided on the grounds that they are psychometrically indefensible.

5. Because parole is part of a criminal justice system an essential characteristic of which is the exercise of control over others, the use of quasi-judicial procedures, including opportunity for appellate review, should form one component of policy.

6. The maintenance of order in institutions may require a mechanism for responding to misconduct. Once again, quasi-judicial safeguards appear called for.

7. In order to serve most effectively as an equalizer of discrepant judicial sentencing practices, the policy might focus on specifying how much time a person under sentence shall spend in confinement.

8. Because the Parole Commission occupies a leadership role in an area where lack of unanimity characterizes public sentiment

the Commission may propose policy that is not always in accord with public expectations.[17]

9. The policy should not be expected to be applicable in all cases. In other words, some decisions may reasonably fall outside the guidelines. In such cases explicit reasons should be given for the deviations.

10. No set of paroling guidelines will ever be final. Any structure must be continually reassessed and perhaps altered. Such reexamination will take the form of legal and moral debate as well as research into the effects of parole policy on the operation of other parts of the criminal justice system and its outcomes.

A Potential Structure for Policy

The considerations just reviewed suggest the following structure as one with potential for assisting in the specification of a parole policy. This structure is in general accord with some trends in current implicit policy although it ignores others.

Seriousness. If detailed estimates of the seriousness with which any particular offense is viewed can be developed, these estimates can then be used to guide decisions about the amount of time to be served for that offense. The rationale for using this dimension in setting time to be served would be the notion that the more heinous the offense the more severe the punishment should be. In other words, this is an explicitly retributive or penal policy and would have to be defended as such.

Criminal history. Society may view any particular instance of criminal behavior as a matter of more consequence when perpetrated by

[17] In particular, it may have to resist pressure for harsh penalties from the general public, prosecutors, or other governmental bodies.

an individual who has committed many criminal transgressions in the past. In other words, a theft of $200 by a person who has been convicted of theft thrice before might be punished more severely than the same theft by a first offender. If decisions can be made about what aspects of criminal history should be considered, and if agreement can be reached on the amount of additional punishment by confinement that is due an adjudicated offender for given degrees of prior criminal involvement, then these estimates can be used in specifying a policy.[18]

A side effect of the use of criminal history in determining time to be served is that, owing to the value of past record in predicting future recidivism, poor parole risks will tend to be incarcerated longer than good risks.

Institutional conduct. If agreement can be reached on the seriousness with which various kinds of institutional misconduct are viewed, these estimates can be used to guide decisions to extend confinement beyond the amount of time determined by using commitment offense severity and criminal history (provided, of course, that any extension is within the limits of the original sentence). A review of each case whenever an instance of misconduct is alleged could be the mechanism for implementing a policy of making release partially contingent on good institutional comportment. An appeal process would also be established.

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[18] An inspection of the way the Federal Parole Board has developed guidelines based on a parole prognosis (Salient Factor) estimate that is composed largely of criminal history information, combined with offense seriousness (Severity) implies that prior record is used contingently. That is, no fixed amount is added to time served for a given amount of prior criminal involvement. Instead, prior history is treated as more important when considering the case of a person serving time for a more serious crime.

Implementation

The foregoing has several implications for implementation. These implications involve changes in the time hearings are held, the development of decision-making tools, and public discussion of the policy prior to its adoption.

When to hold hearings. Except for review of those few cases charged with disciplinary infractions, parole hearings could be held shortly after judicial sentencing. Information about the seriousness of the commitment offense and evidence of prior criminal history are available at that time. Little is to be gained in allowing uncertainty to be prolonged by allowing a portion of the sentence to pass before review, and the criticism that parole institutionalizes uncertainty could be overcome by early parole hearings.[19] This proposal assumes that the Commission reconstrues its mission to be that of equalizing judicial discrepancy and of determining time to be served in confinement.

Hearing examiners might make recommendations on cases shortly after sentencing. A Commissioner would then review each case shortly thereafter to check on its accordance with policy. At this point, the determination as to the time on sentence to be spent in confinement, and the reasons for this determination, would be communicated to the inmate. Naturally, hearing examiners could deviate from the formal policy whenever deviation appeared appropriate. The only restraint on this deviation might be the Commissioner's review to see that the reasons given for the deviation be explicit and reasonable. In the

[19] Some account must be taken of the Maryland statute relating to early hearings for "violent" offenses. Either the law would have to be changed or special procedures adopted for such cases.

event of appeal, the case might be reviewed again by two Commissioners other than the Commissioner who initially reviewed the case--or, appeals might be heard by the entire Commission.

Tools. Implementing a policy according to the structure described here would require (a) explicitly described offenses and agreed upon ratings of the seriousness with which each is viewed, (b) an explicit schedule for scoring criminal history, (c) an explicit specification of the amount of time (or ranges of time) that, according to Parole Commission policy, a person shall be confined unless other compelling reasons imply otherwise, and (d) improvements in the quality of information available at the time of the parole hearing.

Fortunately, previous work (Gottfredson et al., 1977; Hoffman, Beck & DeGostin, 1973; Rossi, Waite, Bose & Beck, 1974; Sellin & Wolfgang, 1964; Wellford & Wiatrowski, 1975) implies that agreement on the seriousness of various offenses can be achieved. The Commission might start by reviewing this work for suitability to its purposes, and by making appropriate modifications.

The following excerpts from the Rossi et al (1974) seriousness scale developed via a survey of Baltimore citizens illustrates one potential starting point of such an effort:

Rank	Crime	Mean Score
1	Planned killing of a police officer	8.5
2	Planned killing of a person for a fee	8.4
3	Selling heroin	8.3
4	Forcible rape after breaking into a home	8.2
	⋮	
18	Assault with a gun on a stranger	7.8
19	Impulsive killing of a spouse	7.8
	⋮	

Rank	Crime	Mean Score
53	Mugging and stealing $25 in cash	6.9
54	Selling pep pills	6.9
	⋮	
84	Printing counterfeit $10 bills	5.9
85	Shoplifting a diamond ring from a jewelry store	5.9
	⋮	
122	Refusing to make essential repairs to rental property	4.8
123	Engaging in male homosexual acts with consenting adults	4.7
	⋮	
134	Refusal to pay parking fines	3.6
140	Being drunk in public places	2.8

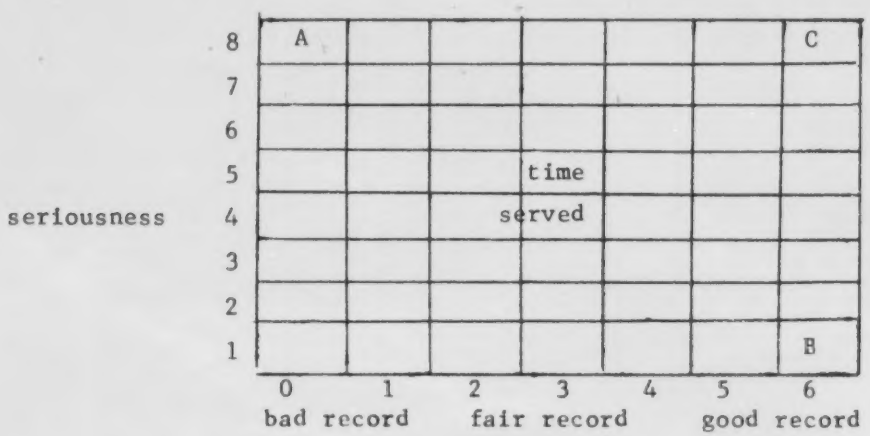
The development of a dimension that asseses criminal history is slightly more problematical. An important consideration is whether or not information about prior record should be included when no conviction resulted. For example, the number of prior arrests is sometimes viewed as a measure of delinquent involvement that is more sensitive than number of prior convictions. In fact, such variables as number of prior arrests, longest arrest-free period, and whether or not the first arrest was for auto theft are often good predictors of subsequent recidivism. In selecting the information to be included in an assessment of prior criminal history the Commission will want to consider the ultimate defensibility of the items chosen. It may want to seek legal advice.

The Parole Commission might take as a starting point a simple count of prior adult convictions, or it might attempt a more thorough inventory along the lines of the following, where one point is given for each "yes" answer:

- Commitment offense did not involve auto theft.
- Subject had one or more codefendent.
- Subject had no prior adult incarcerations.
- Subject had no prior adult sentences (i.e., fines, probation, suspended sentences).
- Subject has never received a new conviction as an adult while on parole or probation.
- Commitment offense did not involve forgery, fraud, or theft.

The actual selection of variables used would be dependent, in part, on whether the Commission views this scale as a prediction device or an assessment of past criminal involvement. In the former case, information about employment history, opiate or alcohol use, and juvenile record might be added, as well as information about prior arrests and parole violations not involving a new conviction. Alternatively, a scheme which attempts to assess the seriousness of prior offenses (along the lines suggested by von Hirsch, 1976, chap. 16) might be developed.

Once seriousness ratings and a measure of criminal history have been settled upon, the next task would be to consider combinations of offense severity and history to seek consensus on the amount of time in confinement to be recommended for each combination. The following diagram illustrates the task:



Cells in the table might be filled in by considering specific examples. How many months should be served by a first offender who robs a convenience store of $1000 using a gun? By a person with 5 prior convictions? How many months should be served by a first offender who enters an unlocked car, forces open the glove compartment, and steals personal belongings worth $5? By a person with 5 prior convictions?

Put another way, Cell A in the figure might refer to a person with "no" answers to all six items in the list on page 56 who committed a planned murder of a police officer. How many months should such a person serve? Cell B might refer to a person with "yes" answers to all six items in the list on page 56 who committed the offense of public drunkenness. How many months should such a person serve, if any? Cell C in the figure might refer to a person with the same offense as the person in Cell A (planned killing of a police officer), but who has "yes" answers to all six items in the list--a first offender. How many months should such a person serve? Once judgments of this type have been made, it may be desirable to smooth out the number of months in the cells so that time increases in a regular fashion as one reads to the right along the rows and up along the columns in the diagram.

As a practical matter, it is important to consider the ways in which implementing a structure developed through such a process will affect other parts of the system. Some such effects are easy to anticipate in advance. Prison population size, for example, is largely a function of two parameters: (a) the number of persons committed to prisons, and (b) the average (mean) time inmates spend in confinement. Any increase in the average time spent in confinement will increase

prison populations. Any decrease in average time in confinement will decrease prison populations. When attempting to implement a matrix approach to parole decision making like the one described here, it will be essential to carefully monitor the proportion of persons paroled in the short run, and average time served and inmate populations in the long run. A structure that increased prison populations could be disasterous in a very short time.

Public scrutiny and participation. One way to make any paroling policy more defensible is to open the details of policy formulation for public discussion and comment. An explicit policy lends itself especially well to this process. The final decision about the kinds of criminal history information to be included in a parole decision-making structure might be made after public discussion, for example. Public announcement of parole policy appears to be an important ingredient in fairness. A person with two prior convictions should know that he or she will be treated more harshly in the penal system with each succeding conviction. In short, all parties should be given notice about the parole policy.

System Monitoring

Parole is one component of a diffuse but interacting criminal justice system. Changes in one part of the system will very often affect other parts. Any change in paroling practice should be accompanied by careful monitoring not only of parole itself, but of other components of the system. This monitoring, evaluation, and revision will be a continuing process.

Potential changes tied directly to the parole decision will be

fairly easy to anticipate. Does the implementation of the policy alter the proportions or characteristics of persons typically paroled? Does it alter the typical time served? As already noted, if average time served increases, prison population will grow. If decisions are explicitly and consistently made partly on the basis of prior record, to take another example, one might expect the proportions of parolees originally sentenced for any given offense who are returned to prison to drop. Such changes would be easy to monitor via the Uniform Parole Reporting System, if it is maintained in Maryland.

It will be necessary to quickly modify any policy to take into account undesirable consequences that are easily forseen; as well as to respond to public discussion of the moral, legal, and scientific issues involved in these decisions about crime, penal sanctions, and individuals' lives. At the same time, it will be helpful to anticipate that this early sensitivity and responsiveness is not all that is required. Some consequences of parole policy may not be readily apparent, and others may develop only after a period of time as the criminal justice and penal system responds to the policy. Likewise, continued vigilance to see that the policy is being applied as intended will be required. This means not only that review of parole recommendations will be required to see that the majority accord with the stated policy, but also to ensure that the quality of information used in decision making does not deteriorate as time goes on.

Some consequences of parole policy changes that may be difficult to anticipate include subtle changes in the actions of decision makers elsewhere in the system. The behavior of prosecutors, judges, or agents

who prepare presentence investigation (PSI) reports may change in response to different expectations about the consequences of their actions. If PSIs form one basis of parole hearing examiners' information about the offense--information that directly influences the parole date recommendation--then agents may alter the way they prepare these reports in subtle or unanticipated ways. Similarly, judges may become more or less likely to accept guilty pleas when they know that the number of prior convictions directly influences the time a defendent will spend in prison.

The Indiana experience with a determinate sentencing law (Clear et al., 1977) implies that this kind of system change is a realistic possibility. Not only were changes in prosecutors' behavior noted, but the provisions of the new law also had the unanticipated side effect of putting more discretion in the hands of the correctional officers who made decisions about the amount of good time earned. Vigilance about such unintended possible side effects of <u>any</u> policy is necessary for policy evaluation and revision.

Monitoring the workings of the criminal justice system will suggest ways to alter parole policy from time to time. An explicitly delineated policy lends itself well to review, evaluation, and revision. The results of policy revision based on monitoring and evaluation may lead to better policies over time. In the long run, a system that is open and examines itself appears to have the greatest prospect of being fair, equitable, and effective.

Appendix I

Missing Data

A frequent problem in parole decision making is a lack of information desired for decision making. This problem also plagues criminal justice research. This appendix shows the extent of missing information in case folders. Table II-A was prepared by counting the frequency with which data was coded as missing by the coders. Naturally, some information may have been present but overlooked. Notwithstanding this possibility, the table illustrates that obtaining certain kinds of information from case folders is a difficult task.

Table I-A
Proportion of Missing Data by Item

Item	Proportion Missing Data
Identification number	.06
First codefendant's ID number	.97
Second codefendant's ID number	.97
Third codefendant's ID number	.99
Inmate's date of birth	.01
Hearing Date	.00
Identifying code for first examiner present at the parole interview	.00
Examiner's recommendation	.00
Commissioner's concurrence	.01
Commissioner identity	.01
Year of Birth	.00
Sex	.00
Race	.03
Present offense	.01
Plea at trial for present offense	.14
Plea bargaining	.38
State's witness	.32
Weapon	.24
Sentence length	.00
Date sentence began	.00
Current expiration date	.36
Number of prior convictions for offenses against persons	.08
Number of prior convictions for offenses against property	.08

Item Continued	Proportion Missing Data
Number of prior convictions for verified offenses other than against persons or property	.06
Number of verified prior incarcerations	.08
Number of verified prior paroles	.01
Total number of reported escapes or attempted escapes during current or prior incarcerations	.01
Number of months of longest arrest free period while not incarcerated	.29
First verified conviction is for auto theft	.01
Age in years at first arrest resulting in conviction	.09
Year of first arrest resulting in a conviction	.09
Verified juvenile criminal record	.23
Last grade verified as completed prior to current incarceration	.12
Any education undertaken in institution	.32
Any vocational training completed in institution	.30
Marital status at time of intake	.06
Home plan verified by institutional parole agent's report	.25
Alcohol abuse	.16
Opiate use	.11
Barbiturate use	.15
Any other psychogenic substance	.13
Usual occupation of inmate prior to incarceration	.15
Present occupation	.14
Longest continuous employment with a single employer in the subject's history	.35

Item Continued	Proportion Missing Data
Employment verified by parole agent's report	.37
Institutional location of hearing	.12
Date of incarceration	.65
Number of assaultive infractions	.26
Number of infractions other than those involving assault	.26
Number of appearances before the Commission for the present offense	.03
Number of releases	.28
Prior parole: Was the inmate previously paroled on the current commitment	.05
Number of escapes or escape attempts during the current commitment	.05
Number of new sentences received for escapes or escape attempts	.08
Any detainers, pending charges, unpaid fines or commitments to other jurisdictions at time of hearing	.05
Money in inmate's account	.44
Source of independent commendations	.11
Direction of recommendation	.13
Items from Examiner rating sheet	
Item 1	.07
Item 2	.09
Item 3	.08
Item 4	.07
Item 5	.09
Item 6	.09
Item 7	.09
Item 8	.09
Item 9	.11
Item 10	.11
Item 11	.11
Item 12	.11
Item 13	.11
Item 14	.11
Item 15	.11
Item 16	.12
Item 17	.12
Item 18	.12
Item 19	.12

Appendix II: Reliability of Measures

The success and usefulness of any statistical study depends on the precision with which measurement is made. If individual items of information can not be reliably recorded--that is if two coders do not reproduce or duplicate each other's work with fidelity--then we can have little confidence in the usefulness of the data for further study. Similarly, if composites or scales composed using individual items of information do not measure a single construct or dimension of behavior, then their usefulness as explanatory variables is lessened.

The tables in this appendix summarize some of the reliability studies performed during the present project. Three kinds of reliability were examined, each appropriate for certain kinds of information. The following paragraphs describe the indices of reliability used and discuss the results.

Some kinds of information about a person is best recorded using sets of categories. In terms used by measurement theorists (Stevens, 1951), these variables involve measurement at the nominal level. The term "nominal" is applied because information about the meaning of a category is in its name. No implication that one category is necessarily greater than or better than another is usually intended. An example of such an item of information is ethnicity. Each individual seen by a hearing examiner was classified by coders as Black, White, Native American, Spanish-speaking/surnamed, Asian, or other. For information recorded using this kind of measurement we have used Cohen's (1960) kappa to describe the degree to which two independent coders agree on the assignment of a category. Kappa is a proportion. In

particular it is the proportion of greater-than-chance agreement possible that actually occurred in the intercoder reliability sample. The maximum value that kappa can have is 1.0; a value of 0.0 would mean that no more agreement than would be expected simply by chance has occurred.

The kappas shown in Table II-1 were obtained by having pairs of recorders code information for the same 84 cases. As the table shows, agreement on the assignment of categories was easier for some items of information than others. Information such as the decision to recommend parole or not, the subject's ethnic group, or the subject's gender were easy for examiners to agree upon. These items have high kappas--all are above .90. In contrast, some kinds of information were not recorded reliably at all. For example, whether or not plea bargaining occurred at the subject's trial (kappa = .18) or the identity of the person's present occupation (kappa = 0.00) were apparently difficult to code. Items of information with very low kappas (say below .30) can be expected to be of little use in the present study.

Other kinds of data are recorded in ways that convey information about the relative order of one number in relation to another. That is, the numbers assigned to a variable convey information about magnitude: length of time, number of convictions, etc. This kind of measurement conveys, at least, information about the rank order of individuals to whom the numbers are assigned. In technical terms it is called "ordinal" measurement (Stevens, 1951). For information recorded using at least ordinal measurement we have used correlation coefficients

Table II-1

Intercoder Reliability (Kappa) for Categorical Data

(n - 84 pairs of coders)

Examiner conducting interview	.93
Examiner's recommendation: Refuse, rehear, approve, hold	.96
Conditions if examiner's recommendation = rehear	.81
Conditions if examiner's recommendation = approve	.39
Conditions if examiner's recommendation = hold	.61
Commissioner's concurrence with recommendation	.66
Commissioner reviewing recommendation	.98
Gender	1.00
Ethnicity	.93
Offense for current commitment	.75
Plea at trial for commitment offense	.80
Plea bargaining	.18
States witness	.11
Weapon used in commitment offense: yes vs. no or no mention	.70
First conviction was for auto theft	.54
Juvenile criminal record: yes vs. no or unknown	.57
GED completed in institution: yes vs. no or unknown	.31
Vocational training in institution: yes vs. no or unknown	.71
Marital status	.71
Home plan verified in parole agent's report: yes vs. no or unknown	.78
Alcohol involvement: yes vs. no or unknown	.69

continued

Table II-1 (continued)

Opiate use: yes vs. no or unknown	.88
Barbiturate use: yes vs. no or unknown	.80
Other psychogenic substance use: yes vs. no or unknown	.48
Usual occupation: First digit of 1970 Census code	.48
Present occupation: First digit of 1970 Census code	.00
Employment verified by parole agent's report: yes vs. no or unknown	.74
Longest continuous employment	.08
Institution where hearing occurred	.70
Any releases from current confinement: yes vs. none or unknown	.67
Any previous parole from current confinement	——[a]
Any escapes or escape attempt from current confinement: yes vs. no or unknown	.48
Any new sentences for escapes or attempts: yes vs. no or unknown	.06
Any detainers, pending charges, unpaid fines, or commitments to other jurisdictions: yes vs. no or unknown	.42
Independent commendations (source)	-.02
Independent commendations (direction)	-.03

[a] No cases examined in the reliability study had been paroled.

to describe the degree to which two independent coders assign the same values to individual cases. The maximum value that a correlation coefficient can have is 1.0, implying that the same number is always assigned to the same case by the two judges. A correlation of 0.0 means that the numbers assigned by one coder bear no systematic relation to those assigned by a second coder.

The correlations shown in Table II-2 were obtained by having pairs of recorders code information from the same 84 cases. The table shows that, just as was seen earlier with the kappas, coders agreed more closely in coding some items of information than in coding other items. Information such as the subject's age, length of sentence, or the date that the sentence expires are reliably coded (all correlations are above .90). In contrast, other items were less reliably coded. For example, coders differed greatly in recording the number of months in the longest arrest-free period in a subject's record ($r = .33$), or the amount of money in a subject's institutional savings account ($r = .33$). The lower the intercoder reliability for an item, the less contribution that item is likely to make in explaining paroling decisions in the present study.

A third kind of reliability information is of interest. In this case, the term reliability has a somewhat different meaning than agreement between pairs of recorders. Instead, this kind of reliability describes the extent to which a scale or composite formed by combining several individual items presumed to be measuring a single psychological construct or dimension of behavior cohere in measuring that single construct or dimension. This kind of reliability is often

Table II-2

Intercoder Reliability (r) for Ordered Data

(n = 84 pairs of coders)

Age	.99
Hearing date	.90
Length of sentence at commitment	.98
Date sentence began	1.00
Date sentence currently expires	.97
Number of prior convictions for offenses against persons	.55
Number of prior convictions for offenses against property	.57
Number of prior convictions for other offenses	.62
Number of prior convictions for offenses of any kind	.59
Number of prior incarcerations	.80
Number of prior paroles	.41
Number of escapes or attempted escapes from any confinement	.53
Number of months in longest arrest-free period	.33
Age at first arrest resulting in conviction	.84
Year of first arrest resulting in conviction	.65
Highest grade completed	.88
Prestige score for usual occupation (machine recoded from census codes)	.70
Number of assaultive institutional infractions	.73
Number of other institutional infractions	.46
Total number of institutional infractions	.57

continued

Table II-2 (continued)

Number of appearances before Commission on present commitment	.86
Number of escapes or attempts--current confinement	.56
Dollars in institutional savings account	.33

Note: Numbers show correlations between pairs of raters excluding cases where no number was assigned (one or both coders indicated that information was lacking).

referred to as internal consistency (Stanley, 1969) because the reliability coefficient indexes the degree to which the items tend to measure the same thing, or be consistent with one another. This kind of reliability coefficient takes values from 0.0 to 1.0, where 1.0 implies that the composite measures a single construct without error. A value of 0.0 means that the items in a scale bear no systematic relation to each other or any single construct. One useful application of internal consistency coefficients is in determining whether or not a composite score made by combining items is measuring a single dimension of behavior. Scores with high reliability in this sense lend themselves to more straightforward psychological interpretations. Composites with low reliability, although sometimes of predictive value, do not lend themselves to easy interpretation.

Table II-3 shows reliability coefficients for the composites examined in the present study. In general, the internal consistencies are fairly low, ranging from .26 to .88. Most reliable is the scale composed by adding together all the items of examiner's subjective judgments or impressions about a person. This scale was formed by giving one point for each favorable judgment and giving no points for an unfavorable judgment. (The subscales were formed in a similar fashion using subgroups of items that were expected to be highly related to each other.)

The other composites--"personal history" and "compliance with custody"--were less internally consistent. The personal history score was created using items known from previous research (Gottfredson and Bonds, 1961; Hoffman and Beck, 1974) to be related to the

Table II-3

Internal Consistency Coefficients

(KR-20) for Composites

Composite	Number of Items	Internal Consistency
Personal history	15	.50
Examiner's impressions		
Total scale	19	.88
Subscale A (Aggressive)	3	.64
Subscale B (Cooperates)	2	.51
Subscale C (Willingness to change)	3	.86
Compliance with custody	4	.26

probability of recidivisim. That this composite is formed of items measuring diverse kinds of behavior rather than a single construct is not surprising. Meaning is given to this scale not by the unitary nature of the behavior sampled, but by its relation to an important criterian: probability of return to prison.

The low internal consistency of the "compliance with custody" composite means that no particular pattern of behavior is being measured reliably. It also results in part from the relative infrequency of recorded infractions of any sort in the sample.

An application of internal consistency coefficients is illustrated in Table II-4. This table shows the correlations among the three subscales formed from examiner's impressions. Also shown on the diagonal are the internal consistency coefficients for the same subscales. The internal consistencies are not much higher than the correlations among the subscales. This implies that the attempt to form independent or nonoverlapping subscales was not successful. Instead, a parsimonious way to treat the data relating to examiner's impressions is to assume that all items measure a <u>general</u> impression of the person. Consequently, only the global total scale was used in most analyses.

Table II-4

Correlations among Examiner-Impression Subscales and Subscale Reliabilities

	Subscale		
Subscale	A	B	C
A	<u>.64</u>	.52	.49
B		<u>.51</u>	.70
C			<u>.86</u>

Note: Underlined values are the internal consistency coefficients.

Appendix III

Item Content of Composite or Derived Measures

This appendix presents scoring details for six composite measures and the offense seriousness ratings used in the study. All composites consist of dichotomously-scored items, each with equal (or "unit") weight. Unit weighting rather than more complex scoring procedures such as the application of regression or factor weights was used for two reasons. First, the results of a variety of investigations of parole prognosis were reviewed to select items for the base expectancy scale. Because all the items included in the present composite were not obtained from any single previous study of the relation of personal history to parole outcome the assignment of regression weights was not possible. Second, practical considerations (Einhorn and Hogarth, 1975; Gottfredson, 1975; Wilkins, 1973) imply that assigning equal weights to each item in a collection of items related to a criterion or in a scale is generally almost as efficient as more elaborate methods, and is sometimes more efficient in new samples.

In computing an individual's score on any composite, missing data was a frequent problem. For most composites, if any item was missing the composite was not scored for that individual. However, for the base expectancy composite this procedure would have reduced the number of useable cases to approximately 70% of the sample size. In order to decrease the loss of cases due to the absence of a single piece of information for this composite a single missing item was allowed. In such cases, the absence of information was scored in the positive direction.

The adjustment to custody composite contains items relating to institutional infractions, escapes, or parole violations on paroles from the current incarceration. Table III-1 displays its contents in detail. This composite is a poor scale in the internal consistency sense; its KR 20 reliability is only .26. This poor reliability is largely the result of the general infrequency of infractions. For example, only 33 out of 1726 cases had two or more assaultive infractions. Similarly, there were only 266 cases with 3 or more infractions of other sorts, 46 cases with prior paroles from the present commitment, and 194 with records of escapes or escape attempts. As a result, the distribution of total scores was highly skewed, with most cases (1,288 out of 1,726) having no record of any of the infractions scored in this composite.

The base expectancy composite was composed by consulting two experience tables (Gottfredson and Bonds, 1961; Hoffman and DeGostin, 1974) for potentially useful items. The majority of these items relate to offense or incarceration history or to history of abuse of psychoactive substances. Also included, however, are items relating to educational attainment and home and employment plans. This composite is not highly reliable in the internal consistency sense, with a KR 20 of .50. Items were not, of course, selected to produce a homogeneous scale. Instead they were chosen because of a demonstrated relation to an important criterion--parole outcome. Details of this composite are shown in Table III-2.

Several scales were composed by pooling ratings made by hearing examiners at the time of the parole hearing. The composition of three rating scales was guided by an earlier factor analysis (Gottfredson and

Table III-1

Adjustment to Custody

Item	Correlation with total score
Number of assaultive infractions is greater than 1	.24
Number of other infractions is greater than 2	.73
Any prior paroles on the present commitment?	.28
Any escapes or attempts on the present commitment?	.61

Note: In this and subsequent tables in this series, item-total score correlations are not corrected for self-correlation.

Table III-2

Base Expectancy

Item	Correlation with total score
Two or fewer prior convictions for offenses against persons	.17
Two or fewer prior convictions for offenses against property	.36
Two or fewer prior convictions for other offenses	.30
Two or fewer prior incarcerations, or no evidence of prior incarcerations	.43
Older than 18 years at first arrest	.41
First conviction for other than auto theft	.13
Two or fewer prior paroles	.23
No evidence of alcohol abuse	.22
No evidence of opiate use	.28
No evidence of barbiturate use	.33
No evidence of abuse of other psychoactive substances	.30
Twelfth grade completed	.27
No evidence of juvenile criminal record	.32
Home plan verified	.27
Employment plan verified	.24

Lipstein, 1975) of parolee ratings. The first of these scales is called aggression for ease of exposition. It contains examiners' assessments of the likelihood that the subject will be aggressive, accept criticism, and have a quick temper. This three-item scale has a KR 20 of .64, and details of its scoring are shown in Table III-3. In this and subsequent scales, the 5-point Likert-type items used to collect ratings were dichotomized near the midpoint before adding to form a total score.

The second rating scale, called cooperation for ease of exposition, reflects examiners' assessments of the way the subject accepts help and cooperates with the examiner. This two-item scale has a KR 20 of .51. Details are shown in Table III-4.

The third rating scale, called willingness to change for ease of exposition, summarizes examiners assessments of the probability that the subject will avoid criminal behavior, is interested in helping him or her self, and is determined to change his/her behavior. This three-item scale has a KR 20 of .86. Details are shown in Table III-5.

Finally, because of evidence (see Appendix II) that the three scales just described were not very independent of each other--that is that they seemed to be measuring primarily an overall or global view of the subject--a scale was composed simply by adding together all items on which examiners made ratings. In addition to the item content of the three scales just described, the overall ratings included information about the examiners' assessment of the likelihood that the subject would use drugs, maintain employment, abscond from supervision if paroled, abuse alcohol, commit violent crime, property crime, or

Table III-3

Aggression Scale Based on Ratings

Made at the Time of Hearing

Item	Correlation with total score
Tends to be aggresive	-.78
Can accept criticism	.54
Has a quick temper	-.58

Table III-4

Cooperation Scale Based on Ratings

Made at the Time of Hearing

Item	Correlation with total score
Accepts help or advice	.94
Cooperates with the examiner	.51

Table III-5

Willingness to Change Scale Based on
Ratings Made at the Time of Hearing

Item	Correlation with total score
Will avoid criminal behavior	.92
Is sincerely interested in helping himself/herself	.64
Appears determined to change his/her behavior	.70

misdemeaners, avoid criminal behavior, meet financial obligations, and have satisfactory work and home plans. This 19-item scale has a very satisfactory internal consistency, with a KR 20 of .88. Details are displayed in Table III-6.

One derived score was also used in the present research. A seriousness score was produced by recoding the Uniform Parole Reports offense codes according to an assessment of the seriousness of each offense. No new data were collected to produce this scale of seriousness. Instead, the Sellin-Wolfgang (1964) scale, the Federal Parole Board ratings (Hoffman, Beck and DeGostin, 1973), and Rossi, Bose and Berk's (1974) Baltimore seriousness ratings were examined to guide the assignment of seriousness to each offense. Naturally, the use of the relatively gross UPR offense categories and the reliance on investigator judgment in assigning seriousness scores should be viewed as compromises that probably attenuate the apparent importance of offense seriousness in analyses. Nevertheless, few readers would dispute that the ratings shown in Table III-7 roughly reflect the seriousness of most of the offense categories shown. The primary drawback of these seriousness ratings is the necessity of assigning ratings to the heterogeneous offense groupings based on the offense of commitment rather than to detailed descriptions of the actual offenses.

Table III-6

Overall Rating by Hearing Examiner

at the Time of Hearing

Item	Correlation with total score
If released inmate will:	
Use drugs illegally	-.28
Maintain steady employment	.54
Abscond	-.33
Abuse alochol	-.16
Commit a felonious violent crime	-.54
Commit a felonious property crime	-.55
Commit a misdemeanor	-.42
Avoid criminal behavior	.63
Meet financial obligations	.56
Have a satisfactory living arrangement	.32
Have a satisfactory work arrangement	.54
The inmate has the following characteristics:	
Accepts help or advice	.58
Tries to avoid criminal behavior	.69
Is sincerely interested in helping himself/ herself	.60
Cooperates with the examiner	.28
Appears determined to change his/her behavior	.64
Tends to be aggressive	-.41

continued

Table III-6 (continued)

Item	Correlation with total score
Can accept criticism	.42
Has a quick temper	-.40

Note: Ratings were made using 5-point Likert-type scales that were dichotomized near the midpoint.

Table III-7

Seriousness of Offenses in The Uniform

Parole Report Classification

Offense Category	UPR Code	Seriousness Rating
Willful homicide	01	13
Negligent manslaughter	02	13
Forcible rape	70	12
Other sex offenses (against juveniles)	72	12
Armed robbery	10	11
Aggravated assault	20	10
Unarmed robbery	11	9
Theft or larceny	40	8
Burglary	30	8
Prostitution or pandering	73	7
Other sex offenses (not against juveniles)	74	7
Vehicle theft	50	6
Violation of the narcotics laws	80	5
Fraud or larceny by check	60	4
Other fraud	61	4
Statutory rape	71	3
All other offenses	90	2

Appendix IV

Auxiliary Analyses

This appendix presents some supplementary analyses that were important in the progress of the research, but that are not central to the main themes discussed in the text. The first part shows the details of some early, exploratory discriminant analyses. The second part displays some results of multiple discriminant analyses attempting to use a subset of discriminatory variables to simultaneously discriminate among cases where the decision was to hold, rehear, refuse, or release. The third part gives some information about some attempts to examine differences among decision makers. The fourth part gives the results of an examination of the decision to delay, i.e., it examines the correlates of the length of time a case is postponed before rehearing, if it is reheard at all.

Part 1. Exploratory Analyses

In the early stages of the research a number of exploratory analyses, not all of which are reported here were performed. The purpose of these early analyses was to find ways to simplify the complex research task by discovering which variables were most important to include in later analyses. Some early multiple discriminant analyses (not shown) implied that one discriminant function worked fairly well to separate those paroled from other groups, but that the second and third discriminant functions were not very powerful in separating holds from other groups or in separating the "refuse" decision from the other groups, although some discrimination was possible. For this reason,

the next set of analyses focused on the decision to grant parole rather than to refuse or rehear; and, on the grounds that they could not be efficiently discriminated and would simply cloud the interpretation of the analyses, the "hold" cases were deleted from the analyses at this stage.

Table IV-1 displays some results of explorations at this stage. Each model in the table was developed using stepwise discriminant analysis with different constraints. Model 1 shows results when ratings and institution of confinement were not allowed to enter. (For each column in this table, a blank space means that the variable could not enter the model.) In other models, ratings and institution of confinement were allowed to enter. As a result of the analyses shown in Table IV-1 and other analyses not shown, it was discovered that offense seriousness worked about as well as using dummy coded variables to represent the offense, and that a number of variables contributed little to description. The selection of variables in the analyses shown in text Table 1 was based on explorations of the type described here.

Part 2. Multiple Discriminant Analyses

When attempts are made to discriminate among more than two groups, more than one discriminant function is usually developed. This part shows the results of analyses using the same variables as those in text Table 1 to describe the differences among the four decision groups. Table IV-2 shows results of several attempts to build models to discriminate among the "refuse," "rehear," and "parole" groups. The "holds" were deleted in these analyses. All these models were created directly, i.e., we specified which variables would be in the model rather than

Table IV-1

An Exploration of Several Models for Describing the Parole Recommendation
Using Two Criterion Groups

Variable	Univar. F	Standardized discriminant weight for model: 1	2	3	4	5	6
Ratings at hearing	230.77			.62	.62		.62
Institution							
MCCC	75.73			.11	.04		.11
MHC	63.42			-.38	-.44		-.38
MP	16.44			-.17	-.20[b]		-.17
CCTF	12.94			.10	.07[b]		.10
MCIH	7.64			-.17	-.21		-.18
MCTC	6.21			-.18[b]	-.24		-.18[b]
MCIW	1.29			[c]	[c]		[c]
MRDCC	.85			[c]	-.13[b]		[c]
CVRCC	.00			[c]	[c]		[c]
Sentence length	46.13	-.27	-.29	-.01	-.02	-.30	-.01
Weapon used	35.11	-.26	-.32	-.13	-.18[b]	-.26	-.13[b]
Offense severity	27.62	-.17[b]		-.12[b]		-.20	-.12[b]
Prestige of usual occupation	21.79	.37	.40	.10	.10	.39	.10
Race is white	19.76	.28	.29	.13	.12	.26	.12
Proportion of sentence served	11.76	.41	.38	.26	.24	.38	.25
Received new sentence	10.55	-.28	-.30	-.03	-.03[b]	-.31	-.03[b]
Adjustment to custody	9.20	[a]	.19[b]		.01[b]		
Base expectancy	8.27	.31		.03			
Time served/expected time (nat. samp.)	5.55					[a]	
Time served/expected time (F.P.B.)	4.71	[a]	[a]				
Divorced	.01	-.14[b]	-.14[b]	-.06[b]	-.05[b]	-.16	-.06[b]
Wilks' lambda		.86	.87	.59	.59	.87	.59
Percent correct classification		71	72	82	83	70	83

[a]Variable did not enter the model.
[b]Weak variable entered the model.
[c]Due to a defect in the stepwise procedure used for models 3, 4, and 6, some institutions making weak contributions were excluded. This exclusion has little effect on the overall pattern of results.

Table IV-2

Standardized Discriminant Weights for Several Models of Paroling Policy Using Three Criterion Groups

Variable	Univar. F	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
		Fn 1	Fn 2	Fn 1	Fn 2	Fn 1	Fn 2	Fn 1	Fn 2	Fn 1	Fn 2	Fn 1	Fn 2
Ratings at hearing	124.78	.57	.35	.58	.34			.67	.62				
Sentence length	90.36	-.21	.76	-.22	.77	-.43	.70	-.46	.71	-.71	.52	-.75	.46
Institution: MCCC	36.92	-.09	.27	-.11	.27	-.12	.31						
MHC	33.92	-.48	-.15	-.50	-.14	-.55	-.50						
MP	10.30	-.18	-.31	-.18	-.31	-.18	-.52						
MCTC	9.31	-.33	.12	-.34	.12	-.41	-.07						
CCTF	6.23	.03	.13	.02	.14	.03	.22						
MCIH	5.59	-.26	.03	-.25	.02	-.28	-.12						
MCIW	4.22	-.02	-.10	-.04	-.09	-.02	-.12						
CVRCC	1.28	-.10	.06	-.11	.06	-.11	.04						
MRDCC	.28	-.17	.04	-.18	.05	-.23	-.08						
Weapon used	32.04	-.13	-.10	-.15	-.10	-.14	-.19	-.18	-.12	-.11	-.37	-.14	-.44
Proportion of sentence served	26.18	.32	-.38	.32	-.38	.43	-.24	.35	-.38	.49	-.18	.49	-.17
Race is white	13.12	.12	-.02							.18	.27		
Prestige of usual occupation	10.74	.08	.10	.09	.10	.14	.24	.09	.16	.09	.62	.10	.68
Received new sentence	6.41	-.00	-.03	-.01	-.03	-.04	-.08	-.08	-.08	-.09	-.38	-.09	-.41
Base expectancy	4.68	.02	.01	.01	.01	.08	.11	.05	.05	.12	.47	.10	.46
Group centroids													
Refuse		.03	-.95	.02	-.94	.43	-.79	.13	-.82	.61	-.38	.62	-.36
Rehear		-.57	.20	-.57	.20	-.55	.05	-.54	.15	-.50	-.02	-.49	-.02
Parole		.94	.22	.93	.22	.66	.38	.82	.24	.47	.26	.45	.25
Wilks' lambda		.45	.80	.45	.80	.57	.84	.54	.85	.70	.95	.71	.96
Percent correct classification		73		73		66		69		61		61	

selecting them in a stepwise fashion. Model 1 includes all the variables listed, Model 2 is the same except that it excludes race, Model 3 excludes race and examiners' ratings, and so on. In each case, the first discriminant function seems to separate the "parole granted" group from the "rehear" group. These functions resemble closely those shown in text Table 1. For each model, the second discriminate function, which is always much less powerful than the first, seems primarily to distinguish the "refuse" cases from the others. It appears that, other things being equal, people with short sentences who have served large proportions of their sentences are often refused parole.

Table IV-3 shows parallel analyses when the "holds" are included as a group to be discriminated in the analyses. The first and second discriminant functions resemble those of Table V-2, and the third function, which is always very weak, primarily distinguishes "holds" from the other three groups. There appears to be some tendency to hold for more information those persons who are confined at the Maryland Reception, Diagnostic, and Classification Center, those with low base expectancy scores, and those who used a weapon in the commitment offense. The high values of Wilks' lambda imply, however, that little efficiency in discrimination has been achieved with this third function.

Table IV-3

Standardized Discriminant Weights for Several Models of Paroling Policy Using Four Criterion Groups

Variable	Univariate F	Model 1 Fn 1	Model 1 Fn 2	Model 1 Fn 3	Model 2 Fn 1	Model 2 Fn 2	Model 2 Fn 3	Model 3 Fn 1	Model 3 Fn 2	Model 3 Fn 3	Model 4 Fn 1	Model 4 Fn 2	Model 4 Fn 3	Model 5 Fn 1	Model 5 Fn 2	Model 5 Fn 3	Model 6 Fn 1	Model 6 Fn 2	Model 6 Fn 3
Ratings at hearing	82.99	.57	.32	.29	.58	.32	.22				.68	.63	.14						
Sentence length	57.11	-.19	.72	.23	-.20	.72	.30	-.39	.66	.39	-.45	.67	.52	-.69	.37	.57	-.72	.34	.65
Institution: MCCC	24.23	-.10	.30	-.02	-.11	.30	.01	-.14	.32	.07									
MHC	23.85	-.47	-.16	.18	-.48	-.16	.24	-.56	-.51	.06									
MP	9.11	-.18	-.32	.23	-.18	-.32	.24	-.19	-.52	.11									
MCTC	9.03	-.34	.16	-.31	-.35	.15	-.30	-.42	-.02	-.38									
MCIH	5.15	-.25	.00	.35	-.25	.00	.36	-.28	-.14	.32									
CCTF	5.10	.04	.13	.12	.03	.13	.17	.05	.20	.24									
MCIW	3.04	-.03	-.09	-.02	-.04	-.09	.02	-.02	-.11	-.00									
MRDCC	2.25	-.19	.12	-.41	-.20	.12	-.40	-.28	-.00	-.47									
CVRCC	1.44	-.10	.05	.22	-.10	.05	.26	-.10	.02	.27									
Weapon	22.36	-.18	-.05	-.39	-.19	-.05	-.35	-.18	-.13	-.41	-.21	-.08	-.56	-.14	-.18	-.78	-.17	-.29	-.73
Proportion of sentence served	19.25	.33	-.39	-.04	.32	-.39	-.04	.44	-.25	-.04	.37	-.41	.24	.52	-.22	.18	.52	-.20	.21
Race is White	8.95	.09	.01	-.39										.16	.34	-.35			
Prestige of usual occupation	7.21	.10	.08	.07	.10	.08	.03	.16	.22	.12	.10	.14	-.04	.11	.57	.38	.12	.66	.25
Base expectancy	5.26	.01	.02	-.37	.00	.02	-.36	.09	.13	-.30	.04	.03	-.73	.13	.56	-.43	.11	.54	-.54
Received new sentence	4.31	-.05	-.00	-.10	-.05	-.00	-.11	-.08	-.06	-.14	-.11	-.05	-.02	-.13	-.32	-.23	-.12	-.36	-.18
Group centroids																			
Refuse		.03	-.98	-.03	.03	-.98	-.03	.43	-.82	-.05	.15	-.83	.01	.63	-.38	-.05	.64	-.36	-.03
Rehear		-.56	.16	.10	-.56	.16	.10	-.53	.01	.09	-.53	.13	.06	-.49	-.05	.05	-.48	-.04	.05
Parole		.97	.19	.08	.97	.19	.07	.70	.35	.09	.86	.23	.03	.50	.22	.08	.48	.23	.06
Hold		-.11	.27	-.51	-.13	.27	-.48	-.16	.28	-.45	-.15	.11	-.30	-.14	.20	-.28	-.16	.14	-.27
Wilks' lambda		.47	.78	.96	.48	.79	.97	.58	.82	.97	.57	.86	.99[a]	.72	.94	.99	.73	.95	.99
Percent correct			.63			.62			56			59			52			52	

[a]Not significant

Part 3. Hearing Examiners and Parole Decisions

One reason that any model might not perfectly account for the "policy" of an entire group would be large differences among individual decision-makers in the ways they make judgments or decisions. Consequently, an effort was made to investigate examiner differences. The evidence developed is presented in this appendix.

Table IV-4 shows correlates of the global rating of the potential parolee made at the time of the hearing. These correlations imply that high ratings go to persons with good employment histories, good employment plans, and high base expectancy scores. Those with many assaultive institutional infractions and inmates of high security institutions tend to be given low ratings. Interestingly, no variable has a correlation above .20 with the overall rating.

Of special interest are the correlations of the dummy variables for examiner identity with the global ratings. All of these are very near zero implying that no examiner systematically tended to give higher ratings than any other. (Note: In all tables showing differences among examiners, the order of examiners is scrambled to preserve confidentiality.)

Table IV-5 presents information about the percentage of different recommendations made by each examiner. With the exception of examiner D the distributions of decisions for the several examiners resemble each other.

Finally, a test of the increased efficiency of a model using information about the identity of the Commissioner vs. a similar model not using this information was conducted. Table IV-6 shows the outcome. Even though the alternate model ommitted information about the overall

Table IV-4

Correlations of Overall Ratings at Hearing with Characteristics of Subject

Variable	r	n
Sex is female	.07	1044
Plea bargained	.02	650
State's witness	-.06	707
Sentence length	-.05	1046
Vocational training in institution	-.03	753
Home plan verified	.09*	814
History of alcohol abuse	-.02	893
History of opiate abuse	-.12**	944
History of barbiturate abuse	-.04	905
Other psychoactive substance	.01	926
Longest continuous employment	.20**	675
Employment plan verified	.18**	693
Number of assaultive infractions	-.15**	788
Number of other infractions	-.12**	789
Number of appearances before commission	-.07*	1028
Number of previous releases	.13**	766
Prior paroles (current commitment)	.00	998
Number of escapes or attempts	-.04	1004
Number of new sentences	-.09*	982
Current detainer	.11*	611
Age	-.03	1040
Base expectancy score	.19**	935
Adjustment to custody score	.08*	998
Severity of commitment offense	-.04	1039
Examiner: A	.02	1048
B	.00	
C	.03	
D	-.01	
E	.03	
F	-.03	
G	.02	

continued

Table IV-4 (continued)

Variable		r	n
Marrital status:	Single	-.07	1048
	Married	.07	
	Common law	.01	
	Separated	.02	
	Divorced	.03	
	Widowed	.03	
Institution:	MRDCC	-.02	1048
	MP	-.15**	
	MHC	-.16**	
	MCIW	.05	
	MCCC	.16**	
	MCTC	.03	
	MCIH	-.03	
	CVRCC	.04	
	CCTF	.09*	
Offense:	Willful homicide	-.03	1048
	Armed robbery	.00	
	Unarmed robbery	-.04	
	Aggravated assault	-.00	
	Burglary	-.10**	
	Theft or larceny	-.05	
	Vehicle theft	-.05	
	Forgery or fraud by check	.08*	
	Other fraud	.01	
	Forcible rape	.10**	
	Statutory rape	.04	
	Other sex offenses (excl. juv.)	.02	
	Narcotics violation	.05	
	No information about offense	.05	
Plea at trial		.00	1048
Received new sentence		-.08*	1048
Prestige of usual occupation		.11**	1048
Weapon used on commitment offense		.03	1048
Race is white		.11**	1019

Table IV-4 (continued)

Variable	r	n
Time left on sentence	-.01	1043
Proportion of sentence served	-.08*	1011
Months served	-.08*	1029

*p < .01
**p < .001

Table IV-5

Percentage of Recommendations of Different Types of Hearing Examiner

Examiner	Recommendation			
	Release	Rehear	Refuse	Hold
A	22.7	49.5	18.6	9.3
B	19.6	51.6	16.9	11.9
C	27.0	39.7	20.6	12.7
D	42.4	21.6	14.7	21.2
E	24.5	43.0	19.5	13.0
F	25.5	41.7	23.9	8.9
G	18.8	50.0	12.5	18.8

Note: N's are not shown to preserve confidentiality, but with one exception (N = 32) all N's are greater than 200.

Table IV-6

A Comparison of Models Using vs. Not Using Commissioner Identity to Account for the Parole Recommendation

	Standardized discriminant weight for model:	
Variable	With	Without
Sentence length	-.32	-.43
Weapon used	-.26	-.33
Prestige of usual occupation	.36	.42
Proportion of sentence served	.28	.35
Received new sentence	-.28	-.28
Base Expectancy	.22	.31
Commissioner A	-.18	
B	.07	
C	.11	
D	.46	
E	-.05	
F	.04	
Group centroid		
Refuse/rehear	-.26	-.23
Parole	.60	.51
Wilke's lambda	.84	.88
Percent correctly classified	72	69

Commissioner rating and about the institution at which the hearing occurred (information likely to be associated with Commissioner identity), little increased predictive efficiency was observed. Wilks' lambda increased from .84 to .88 when Commissioner identity was deleted from the model. Most of the difference was accounted for by the behavior of a single Commissioner who was apparently more likely to recommend parole, other things being equal.

These results are in accord with an earlier study by Gottfredson and Ballard (1966) which also supported the conclusion that when offender characteristics are statistically controlled, decision-makers tend to make similar decisions.

Part 4. An Examination of the Decision to Decide Later

Some additional analyses were conducted to gain insight specifically into the decisions to refuse or rehear. We wanted to learn more about the correlates of the length of time that a decision was deferred. For the purposes of these analyses it was assumed that delay decisions could be measured using a single constructed variable. This variable took the following values:

2 = refuse (i.e., do not rehear),

1 = rehear 9 months or more in the future,

0 = rehear in less than 9 months.

Stepwise multiple regression was used to develop prediction equations. Variables entered the regression model until they accounted for less than an additional one percent of the variance in the criterion. The results shown in Table IV-7 imply that inmates who are serving long sentences, have served small proportions of the sentence, are located in a minimum

Table IV-7

A Regression Model to Predict the Extent of Delay in the Parole Decision

(N = 504)

Predictor Variable	Standardized Regression Coefficient (β)	Unstandardized Regression Coefficient (b)	Standard Error of b	F Value for Regression Coefficient
Sentence Length	-.303	-.004	.001	50.504
Institution was MCCC	-.210	-.433	.084	26.324
Institution was MP	.139	.405	.126	10.383
Proportion of sentence served	.133	.686	.211	10.625
Institution was CVRCC	-.128	-.914	.290	9.927
Institutional Adjustment	-.129	-.162	.055	8.765
Marital Status: Common-law	-.116	-.535	.190	7.927
Constant	---	-.343		

Note: Multiple R = .43, R^2 = .19, F (7,496) = 16.273.

security institution, and have few institutional infractions, are more likely to be reheard at an early date. The model in Table IV-7 explains 19% of the variance in the criterion in the construction sample. When applied in the cross-validation sample of 202 cases it explains 22% of the variance in the criterion.

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